The HARBOUR of MONTREAL

Harbour Commissioners' Warehouse

Annual Report 1928

ANNUAL REPORT

OF THE

Harbour Commissioners

of Montreal

For the Year 1928

STRIKING NEW AERIAL PHOTO OF THE HARBOUR, LOOKING EAST FROM THE CANAL ENTRANCES

Harbour Commissioners of Montreal

MONTREAL, 1ST APRIL, 1929.

To the Hon. P. J. ARTHUR CARDIN, M.P., P.C.,
Minister of Marine,
Ottawa, Ont.

Sir:—

In compliance with Section 51 of the Commissioners' Act 57-8 Victoria, Chapter 48, the Harbour Commissioners of Montreal herewith respectfully submit their Annual Report of operations for the year ended 31st December, 1928.

We have the honour to be,
Sir,

Yours very respectfully,

W. L. McDOUGALD, President.
MILTON L. HERSEY,
ALFRED LAMBERT,
Harbour Commissioners.

IN PRESENTING their Annual Report for the year Nineteen hundred and twenty-eight, the Harbour Commissioners of Montreal take this opportunity of recording their appreciation of the unfailing support and courteous co-operation of the Minister of Marine, the Hon. P. J. Arthur Cardin, and his Deputy Minister, Mr. Alexander Johnston, and the other officers of the Department at Ottawa, whose kindly interest has been of very material assistance to them in the solving of the many problems which they were called upon to deal with during the year.

Harbour Commissioners of Montreal

ANNUAL REPORT

1928

FOREWORD

Embodied in the ensuing pages of this Annual Report for the calendar year 1928 will be found complete detailed records of all of the activities of the Harbour of Montreal for that period. It was a period of high achievement inasmuch as the performances of all previous seasons were surpassed.

The service which the Harbour of Montreal renders to Canada as its premier national port and ocean terminal is expressed in terms of total tonnages of commodities handled and of vessels carrying cargo arrived and cleared. From season to season, as is well known, these totals have been established upon a steadily ascending scale and the season under review was no exception. It is the distinction of the Harbour of Montreal that, while kept physically adequate to the needs of a constantly expanding commerce, it has at no time been a burden upon the taxpayer and the public treasury; whilst the shipping of the seven seas and that of the great system of interior waterways tributary to it finds facilities and service unsurpassed by those of any other ocean port and at the irreducible minimum of cost.

Tons of all commodities, imports and exports, totalled 12,589,126 as against 11,921,173 in 1927, the latter the largest previous total for a single season. There was a wide diversification of commodities embraced and these will be found dealt with in detail under their appropriate classifications in the succeeding pages.

Grain Export Movement

As in other seasons exports of grain and grain products constituted the major item of the harbour's commerce. Grain exports totalled 211,295,379 bushels; to which might also be added upwards of 15,250,000 bushels of wheat exported as flour; in terms of tons representing fully 50% of the grand total. These figures exceed by a very wide margin any previous season's total. The statistical features of the grain movement are set forth elsewhere in this Report with comments upon their import. The magnitude of this movement far exceeds that ever before established at an ocean port of any export country for a 12 month period. Its constant expansion from year to year gives rise to a variety of surmises as to why a still greater volume of Canada's transatlantic grain exports do not reach the sea by the St. Lawrence route. Discussing this matter in another place, the President of the Harbour Commissioners of Montreal was quoted as follows

"The very large volume of Canadian grain (including wheat flour as wheat) exported through Atlantic ports of the United States (from the crop of 1926, 166,721,975 bushels were so forwarded) seeks that outlet chiefly because there is available at these ports in every month of the year an immensely larger tonnage on the berth which loads parcels, that is, quantities short of full cargoes, than is at any time available at any Canadian port. This is due to the concentration at these ports, and especially at New York, of the great passenger and freight liner companies operating directly on fixed routes and regular sailing schedules to ports of Europe and other continents as well. Almost all the grain exported through New York goes forward in vessels of this type; whereas by far the largest percentage of grain exported through Canadian ports is carried by 'tramp' ships, so-called. Though this circumstance is frequently made the subject of complaint, and it is urged that Canadian export grain should all be carried out through Canadian ports and over Canadian routes, yet upon reflection it must be obvious that the movement is highly advantageous to the Canadian grain trade and to producers who must sell and forward grain every day in the

year if their surplus is to be disposed of in competition with the alert traders of other exporting countries. All but a small portion of the total mentioned for 1926 (a typical year) was water-borne to Buffalo and there transhipped, mostly by rail, to the seaboard. While our constant aim must be to reduce this percentage, this can be brought about only if and when the facilities of the St. Lawrence canals are made adequate. It will, however, remain true that in all eventualities a substantial percentage of Canadian grain exports will move through United States Atlantic ports during the closed season in the St. Lawrence, for the reasons stated."

(Hon. Senator W. L. McDougald in Montreal Gazette Commercial and Financial Review for 1928.)

It is of incidental interest to note that the port of Baltimore which ranks high amongst the major ocean ports of the United States, and has been especially equipped to handle grain for export, in the whole of the year 1928 delivered for export, according to figures published by the United States Government, a total of 10,800,000 bushels of grain, the major port on of which was wheat of Canadian origin. The year was closed with 8,600,000 bushels of grain in store in the elevators, of which 6,912,000 bushels was wheat, mostly Canadian in bond.

Foot of Lakes Terminal

During the year the Government fixed the foot of the Lakes terminal at Prescott. The work of creating and erecting a fully-equipped transfer plant for grain and other commodities is proceeding energetically in anticipation of the opening of the through 25-foot channel route from the Head to the Foot of the Lakes after the opening of the new Welland Canal in 1930. A free channel of uniform depth accommodating the largest lake freighters and traversing the great lakes a distance of 1,085 miles cannot fail to give greatly added momentum to the movement of bulk commodities to the new terminal. Shipping interests are making ready to avail themselves of the opportunities of the new era when it opens. It is known that British and Canadian yards are under commission to lay down

at least 30 of the newest type lake and canal freighters. The 14-foot side canals from Prescott to Montreal, and the two rail systems paralleling them, constituting the 114 mile link between the new deep water channel and the seaboard, will have speedily to become adjusted to peak load conditions. The producer upon the Prairies has heretofore been found not wanting, whilst here the Harbour of Montreal is ready. In this connection the table, page 27, "Record Daily Handling," affords an illuminating and interesting study. During 22 days in August, September, October and November the grain elevators handled, in and out, 3,000,000 bushels of grain plus per diem. This is at the rate of 300,000,000 bushels receipts for a normal season of over 200 days. It is a satisfying test of capacity and capability; the other factor, of course, being a close adjustment of receipts and of deliveries out to ocean bottoms. During these days the ships were in port on schedule time and the orders in hand; but throughout the season, as well, from its opening until its end, the same close and efficient adjustment was noted.

New Liner Type in Port

A significant and epoch-making event in harbour annals was the arrival in port on June 11th of R.M.S. "Duchess of Bedford," Capt. H. Sibbons, R.N.R. This is the first of a quartette of 20,000 ton liners which Canadian Pacific Steamships Co. is placing upon the St. Lawrence route with Montreal as their home port; and also the first passenger vessel of this tonnage to sail the ship channel. Later in the season the "Duchess of Athol" came into commission; while it is announced that at the beginning of the 1929 season "Duchess of York" and "Duchess of Richmond" will join the fleet, enabling a weekly service to Liverpool to be maintained by this type. On September 27, R.M.S. "Duchess of Bedford" docked at Quebec from Liverpool, en route to Montreal, having completed the voyage in 6 days, 1 hour and 30 minutes, a new transatlantic record upon the St. Lawrence route, steaming at 18.4 knots.

The White Star Line inaugurated a new service to London, with calls at Southampton and Havre. On this route the "Megantic" and "Albertic" made regular bi-monthly sailings.

It should also be noted here that March 15th the Canadian National fleet was transferred from Canadian Government Merchant Marine, Limited, to Canadian National Steamships, Limited, embracing and operating also Canadian National (West Indies) Steamships, Limited, and Canadian National Steamship Company, Limited, the latter operating vessels on the Pacific seaboard. The Merchant Marine fleet consists of 46 passenger and freight vessels, with 5 delivered or building for the West Indies service and 4 in commission in Pacific waters.

False Charge Respecting Grain Mixing

While this Report was passing through the press the proceedings of the Saskatchewan Royal Grain Commission were being reported in the newspaper press. At Carnduff, reputable "witnesses on oath" were stated to have produced "evidence" in "documentary form" tending to establish that wheat from the United States and the Argentine is mixed with Canadian wheat in the transfer houses at the port of Montreal. All of the grain transfer and storage houses in Montreal belong to and are operated by the Harbour Commissioners. Promptly a communication was despatched by telegraph and later confirmed by letter, directed to the Honourable Chief Justice Brown, Chairman of the Commission, which is as follows:

"The Harbour Commission of Montreal is a body constituted by federal act of Parliament to operate and administer the port of Montreal in a manner to provide the best and most economical service to the trade of Canada. Montreal is a national port and has in mind at all times the working out of policies to best serve the interests of the farmers in the West as well as the manufacturers in the East.

"Last year we handled through our elevators at this port 217,000,000 bushels of grain. In handling this immense

quantity we have not had one serious complaint from any interested party.

"In view of the statements in the press accredited to yourself and to the chief grain inspector appearing before your commission sitting in Winnipeg, seriously affecting the reputation and the high standing in which the harbor of Montreal is held, and also having in mind the effect that such statements may have on the future position and business of this port, we feel that you should place before your commission the following facts, which we undertake will be verified by the proper authorities when your commission carries on the inquiry at Montreal.

"All western-grown Manitoba spring wheat received in the port of Montreal is binned separately, according to grade. The identity of the grades of such grain is preserved by separate binning and is shipped out in accordance with orders received from the shippers, owners or agents.

"In no case are any of the grades of western Manitoba grain mixed in the port of Montreal and shipped out on the western certificate. The only western-grown spring wheat that is mixed in the port of Montreal is No. 3 amber durum and lower grades, including samples of durum.

"The Harbour Commissioners of Montreal are convinced that when your commission has possession of all the facts you will be satisfied that the practice in effect at this port is in no way detrimental to the western producers, but on the contrary is in the best interests of all concerned.

"Therefore, the Harbour Commissioners of Montea1 respectfully request that, if it is your intention to make an interim report which might refer to the handling of grain in the port of Montreal, a sitting of your commission be held here before so doing.

"In view of the publicity already given this matter in the newspapers of the country, we are handing a copy of this telegram to the press.—(Signed) W. L. M°Dougald, President Harbour Commissioners of Montreal."

New Aerial View of Elevator No. 1 and King Edward Pier, showing the Downtown City Area

THE YEAR'S ACTIVITIES

The operations of the Harbour of Montreal during the year 1928 were characterized by a very satisfactory increase in the business of the Port. The most sanguine expectations of the Commissioners were more than realized, and splendid progress was recorded in the various departments of the Harbour Commissioners' organization.

Of primary importance is revenue. As may be seen from the financial statement, revenue in 1928 amounted to $5,589,327.12 derived from the following sources:—

Grain Elevator System	$2,656,659.99
Wharfage Rates	1,409,945.87
Railway Traffic Dept	635,798.76
Rental of Sheds, Hoists, etc	372,717.60
Rental of Harbour spaces	229,285.41
Storage Warehouse	173,678.62
Sundry Receipts, Discounts, etc	111,240.87

The following statement shows the consistent and regular increase which the revenues of the Harbour Commissioners have maintained over a period of years:—

1921	$2,891,274.42
1922	3,460,810.87
1923	3,721,159.99
1924	4,382,115.25
1925	4,749,100.69
1926	4,632,599.92
1927	5,453,951.56
1928	5,589,327.12

Ships and Shipping Tonnage

The total number of ocean ships which traded to the Harbour in 1928 was practically the same as in 1927, but the net registered tonnage of ocean vessels was approximately 500,000 tons greater than in the previous year. The number of inland vessels decreased by 315 from 1927, but in this

instance also net registered tonnage increased by about 1,360,000 tons. The statement which follows shows the steady progress being made by Montreal as an ocean port during the past few years:—

Year	Ocean-going Vessels	Net Regd. Tonnage	Total Ocean-going and Inland Vessels	Total Net Regd. Tonnage
1923.....	1,082	3,683,720	6,691	11,879,028
1924.....	1,223	4,096,332	7,014	15,312,096
1925.....	1,255	5,104,313	7,212	14,782,476
1926.....	1,421	4,221,730	7,618	16,667,324
1927.....	1,610	4,992,486	7,798	17,322,444
1928.....	1,607	5,494,062	7,480	19,229,465

Tonnage of Imports and Exports

The tonnage of merchandise handled through the Harbour of Montreal in 1928 was greater than in any previous year. Exports alone are responsible for the greater part of the increase, being some 660,000 tons more than in 1927. Imports decreased by about 150,000 tons, due in great part to smaller importations of British coals. Domestic tonnage increased by about 155,000 tons. The ensuing statement shows the gradual increase under this head during the past several years:—

	Imports tons	Exports tons	Domestic tons	Total tons
1921.....	851,444	4,122,253	1,250,227	6,223,924
1922.....	1,702,580	5,043,877	1,838,674	8,585,131
1923.....	1,421,295	4,270,226	1,815,351	7,506,872
1924.....	1,472,933	5,594,310	1,918,346	8,985,589
1925.....	2,965,557	5,265,151	906,573	9,137,281
1926.....	2,028,162	4,549,835	2,632,702	9,210,699
1927.....	2,693,535	6,175,485	3,052,153	11,921,173
1928.....	2,543,685	6,838,108	3,207,333	12,589,126

Grain Exports

For the eighth successive year, the Harbour of Montreal exported more grain during its season of navigation than any

other ocean port in the world shipped in the entire twelve months of 1928. For the first time in its history, or in that of any ocean port, grain exports in 1928 exceeded 200,000,000 bushels.

A statement follows, giving a comparison of grain deliveries from the elevators at Montreal and those at competing United States Atlantic and Gulf Coast ports, which clearly shows the supremacy of Montreal in this respect:—

Montreal	211,295,379	bushels
New York	84,782,462	"
Baltimore	24,167,184	"
Galveston	22,432,287	"
New Orleans	15,336,537	"
Philadelphia	13,240,767	"
Boston	5,260,227	"
Norfolk, Va	4,054,662	"
Portland, Me	2,992,349	"

Coal Imports

Coal imports to the Harbour in 1928 reached the considerable total of 2,161,968 tons. This was not as great as the total for 1927, which amounted to 2,500,147 tons, but the imports of Nova Scotia bituminous coal reached a new high figure with 1,659,206 tons. The decrease in total coal imports was due to a decline in imports of British anthracite, which only amounted to 359,253 tons in 1928 as compared with 683,090 tons in 1927. Total coal imports in 1928 were as follows:—

Canadian bituminous	1,659,206	tons
British anthracite	359,253	"
American bituminous	65,039	"
British bituminous	61,471	"
American anthracite	9,664	"
Russian anthracite	5,904	"
German anthracite	1,103	"
South African anthracite	328	"

Railway Traffic

The total number of cars handled during 1928 on the Harbour Commissioners' electrified terminal railroad was 240,622. This figure has only been exceeded once in the past ten years, and but twice since the railway was organized. Notable increases over the previous year were recorded in the volume of traffic during winter months, in the movement of midsummer rail-hauled grain, and in the busy Fall period. During the most active periods, a train was either received or forwarded from the Harbour terminals every twenty minutes. The following statement shows number of cars handled since 1921:—

1921	143,564 cars
1922	200,593 "
1923	216,382 "
1924	225,377 "
1925	251,586 "
1926	205,481 "
1927	195,853 "
1928	240,622 "

Cold Storage Warehouse

During the year 1928, the total tonnage of merchandise handled in and out of the Harbour Commissioners' Warehouse and Cold Storage plant amounted to 32,688 tons. The average quantity of goods in store during the year amounted to about 6,000 tons.

New Harbour Commissioner

In the ensuing pages of this Report will be found particulars of the appointment of Mr. Alfred Lambert to the Board of Harbour Commissioners of Montreal, to fill the vacancy caused by the death of the late Mr. Emilien Daoust.

Staff Changes

On July 17th, 1928, Mr. Thomas W. Harvie, General Manager and Secretary, relinquished his Secretarial duties,

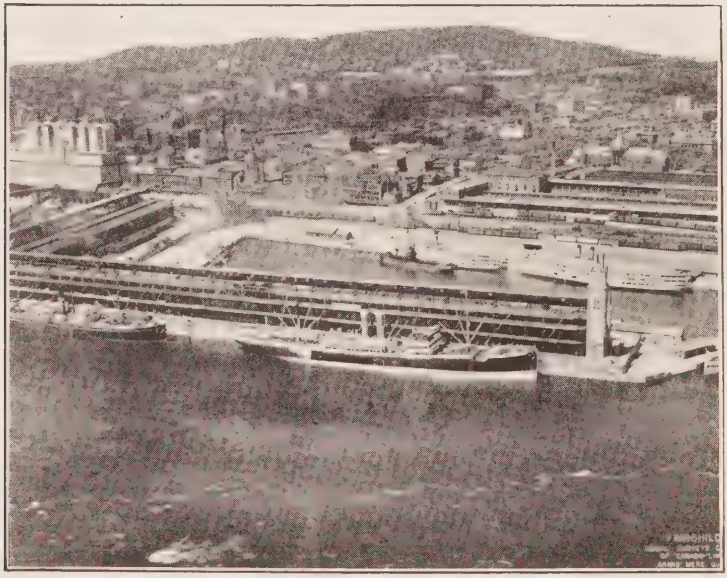
and Mr. L. H. A. Archambault, formerly Assistant Secretary, was appointed Secretary.

On the same date Mr. George Smart, Comptroller, asked to be allowed to retire from the position of Comptroller, after having been for 45 years in the service of the Harbour Commissioners. This request was acceded to by the Board, on condition that he should continue actively to assist his successor during the pleasure of the Commissioners.

Mr. Alex. Ferguson, Assistant General Manager, was appointed Assistant General Manager and Acting Comptroller.

New Works

Complete details of new works of construction and enlargement of Harbour facilities will be found in the Engineering Report, elsewhere in this volume. Amongst the more important items undertaken were:—



Victoria Pier and Basin as Seen from the Air

Completion of new storage annex to Grain Elevator No. 3, including 3,000,000 bushel house, and necessary delivery galleries spanning the Harbour railway tracks and connecting the Tarte Pier sheds.

Construction of two single-storey shed extensions on Alexandra Pier and King Edward Pier, and a two-storey shed extension, complete with conveyor gallery, on Jacques Cartier Pier.

Construction of about 1,200 ft. of new concrete high level wharf at Bickerdike Pier; two new 500 ft. sawtooth high-level wharves at Sections 32-33 with respective 75 ft. return ends; 1,000 ft. of new high-level wharf at Section 57 (below Canadian Vickers Basin); a 225 ft. extension of the Canada Cement Wharf, Section 99, on the downstream end; and a wharf, 112 ft. 6 inches long, at Section 99 for the Frontenac Oil Co.

The New Bridge

A complete description is given in the ensuing pages of the year's work on the new Montreal-South Shore Bridge, from which it will be seen that this project is now within measurable distance of successful completion. Rapid advances were made during 1928 on the erection of steel on the main piers, and the statistics of the engineers show that up to the end of the year 24,600 tons of steel were erected, and 29,354 tons fabricated, representing 77 and 92 per cent. respectively of the finished job.

MR. ALFRED LAMBERT, COMMISSIONER

By Order-in-Council dated June 12th, 1928, Mr. Alfred Lambert was appointed Harbour Commissioner of Montreal to fill the seat on the Board made vacant by the death of the late Mr. Emilien Daoust.

Mr. Lambert was born in Montreal in September, 1861, and is well known, not only in this city, but throughout Canada, for his many successful enterprises.

Since its formation, Mr. Lambert has been a member of the Federal Tariff Commission, formed to study the general

economic situation in Canada and to submit practical suggestions on the Tariff to the Government.

He is President of Alfred Lambert, Ltd., shoe manufacturers, which firm was founded in 1906. He is also President of the Acton Shoe Co., Acton Vale, Que., and a Director of the Canada Accident and Fire Co. He has served on the Citizen Protective Association, and on the Board of Arbitration of the City Employees' Strike Settlement.

Mr. Lambert is a member of the City Improvement League, of the Montreal Board of Trade, the Chambre de Commerce, and of the Catholic Sailors' Club. He was a Warden of Notre Dame Church from 1918 to 1920, a member of the Charter Commission of the City of Montreal in 1920, President of the Chambre de Commerce from 1921 to 1922, a School Commissioner from 1919 to 1922, and President of the Artisan Society from 1900 to 1906. He is a Life Governor of Notre Dame Hospital and St. Jeanne D'Arc Hospital.

DISTINGUISHED VISITORS

The Harbour of Montreal is a source of never-failing interest to visitors passing through Canada from all quarters of the globe. In this respect the 1928 season was more than usually noteworthy.

On June 1st the port was visited by members of the Lighthouse and Buoyage sub-committee of the League of Nations. There were delegates present from many foreign nations piloted by John Romaine, Secretary, and headed by Mr. Parke, U.S. Lighthouse Service; Dr. G. Meyer, Germany; Dr. P. van Braam von Vloten, The Netherlands; H. R. MacKenzie and H. M. Marler, Auckland, N.Z.; A. de Rouvelle, France; and F. P. Dillon, Genl. Supt., U.S. Lighthouse.

On August 16th the Hon. H. H. Stevens, M.P., Vancouver, was entertained by the Commissioners at an elaborate inspection and survey of the harbour. He was accompanied by Senators Smeaton White and J. P. B. Casgrain, and by Messrs. R. S. White, L. G. Bell and C. H. Cahan, K.C., Members of Parliament.

FINANCIAL STATEMENT

HARBOUR COMMISSIONERS OF MONTREAL

The Statement of Income and Expenditure for the Year ended 31st December, 1928, exhibits fully the Financial Transaction of the Board for the Period. The same under the Certificate of the Acting Comptroller, and the Secretary, verified by the Auditors, follows herewith:

ITEMS		Totals	Grand Totals
INCOME ON REVENUE ACCOUNT			
Grain Elevator System		$2,056,659.99	
Railway Traffic Department		635,798.76	
Storage Warehouse		173,678.69	
From Harbour Equipment.— Rental of Sheds, Hoists, etc.		372,717.60	
Wharfage Rates		1,409,915.87	
Rental of Harbour Spaces, etc.		[illegible]	
Sundry Receipts on Revenue Account		106,551.09	
Discounts and Interest		[illegible]	
Total Income on Revenue Account			$5,589,327 12
RECEIPTS ON CAPITAL ACCOUNT			
Dominion Government Advances on Loans: Under Act 17, George V, Chapter 8.			[illegible]
Grand Total Receipts			[illegible]
Outstanding Accounts at 31st December, 1928		591,631 09	
Interest Accrued on Government Debentures, July 1st, 1928, to December 31st, 1928		1,023,810 08	
Sinking Fund Reserve Account			
Amount at 31st December, 1927	[illegible]		
Add Reserve from Revenue 1928	477,100.00		
Total Sinking Fund Reserve at 31st Dec., 1928		1,460,080 00	
Total Outstanding at 31st Dec., 1928		3,075,524 17	
Total Outstanding at 31st Dec., 1927		2,519,691.91	
Balance of Outstanding to Add			555,832.26
			[illegible]

ITEMS		Totals	Grand Totals
EXPENDITURE ON REVENUE ACCOUNT			
Grain Elevator System, Operation and Maintenance	$1,265,505.21		
Railway Traffic Operation and Maintenance	[illegible]		
Storage Warehouse, Operation and Maintenance	[illegible]		
Harbour Equipment Operation and Maintenance	[illegible]		
(The above do not include Interest, Sinking Fund Depreciation, Administration, etc.)			
[illegible]	[illegible]		
Police Service on Wharves	[illegible]		
Sundry Disbursements on Revenue Account	[illegible]		
Total Operation Maintenance, etc.		[illegible]	
Interest on Government Debentures 1928	[illegible]		
Interest on Bank Overdrafts	[illegible]		
Sinking Fund Reserve for Retirement of Debentures	477,100.00		
		2,504,414 42	
Total Expenditure on Revenue Account			[illegible],314,166.50
EXPENDITURE ON CAPITAL ACCOUNT			
Wharves, Piers and Basin			
Bickerdike Basin High Level Wharf	$213,113.29		
Bickerdike Pier Basin and Approach	208,287.50		
High Level Shore Wharves, Sections 25 to 35	263,001 43		
Coal Dock, Sections 56 to 61	407,791.15		
Canada Cement Wharf Extension	135,650.98		
Frontenac Oil Wharf, Section 99	31,820.70		
King Edward Pier Reconstruction	21,707 35		
King Edward Pier Extension (Balance)	351 87		
Windmill Point Embankment, Balance	1,710 06		
New Slips, Market Basin (Balance)	2,700 48		
	1,292,174.81		
Less.—Deepening Windmill Pt. Basin, Overcharged in 1927	18,000.00		
Total Wharves, Piers and Basins		1,274,174 81	
Grain Elevator System:—			
Elevator No. 3 Extension (Annex)	[illegible]		
Power Extension and Alterations (Annex)	[illegible]		
Electrical Works in Annex	25,042 09		
Elevator No. 3, Electrical Extension (Balance)	7,693 03		
Elevator B Electrical Extensions	12,968.07		
Elevator No. 2 Ventilation (Balance)	[illegible]		
Elevator No. 1, Sub-Station Shed	[illegible]		
Elevator No. 1, Car Puller Equipment	352.90		
Elevator No. 1, Electrical Extension	[illegible]		
Total Grain Elevator System		[illegible]	
Permanent Sheds:			
Shed Extension, Jacques Cartier Pier	[illegible]		
Shed Extension, King Edward Pier	81,980 39		
Shed Extension, Alexandra Pier	58,588.07		
Bickerdike Pier Storage Shed	[illegible]		
Total Permanent Sheds		[illegible]	
Plant, Shops and Buildings			
Electric Sub-Station, Hochelaga	151,261 55		
New Flat Scows	19,190.00		
Harbour Yard Shops, Machinery	10,019 34		
Guard Pier Shops, Extensions	[illegible]		
New Land Cranes (Balance)	[illegible]		
	[illegible]		
Less Electric Locomotive Garage Cr. [illegible] Electric Equipment at Machine Shop Cr. 247.81	1,414.97		
Total Plant Shops and Buildings		[illegible]	
Railways and Electrification:—			
Railway Tracks General	[illegible]		
Locomotive and Repair Truck	30,027 30		
Electrification of Railways	30,210 25		
Power House Equipment	21,433 37		
Railway [illegible] System	[illegible]		
Total Railways and Electrification		[illegible]	
Real Estate:—			
Land for Power House Section 42		94,472.87	
Harbour Dredging and Filling			
Dredging Channel, Dry Dock to Racine Pier	76,650.00		
Altering Lower End of Guard Pier	900.00		
Total Dredging and Filling		[illegible]	
Hoists and Sundries			
Buckets for Hoists, Nos. 1, 3, 4 and 5	[illegible]		
Conduit for Telephone Cables	[illegible]		
Total Hoists and Sundries	[illegible]		
Less Electric Sub-Station No. 7, Cr.	[illegible]		
Net Total		[illegible]	
Total Capital Expenditure for Year 1928			[illegible]
Grand Total Expenditure for year 1928			[illegible]
Balance at 31st December, 1928			
Accounts Receivable	[illegible]		
Materials in Stock	[illegible]		
Operating Accounts Balance to 1929	[illegible]		
Cash in Hand and in Bank	[illegible]		
Total Balance at 31st Dec., 1928		[illegible]	
Balance at 31st December, 1927		[illegible]	
Difference in Balance to Add			432,184 34
			[illegible]

Certified
ALEX. FERGUSON, Acting Comptroller,
Montreal, March 16th, 1929

Verified
RIDDELL, STEAD, GRAHAM & HUTCHISON, C.A.,
Auditors

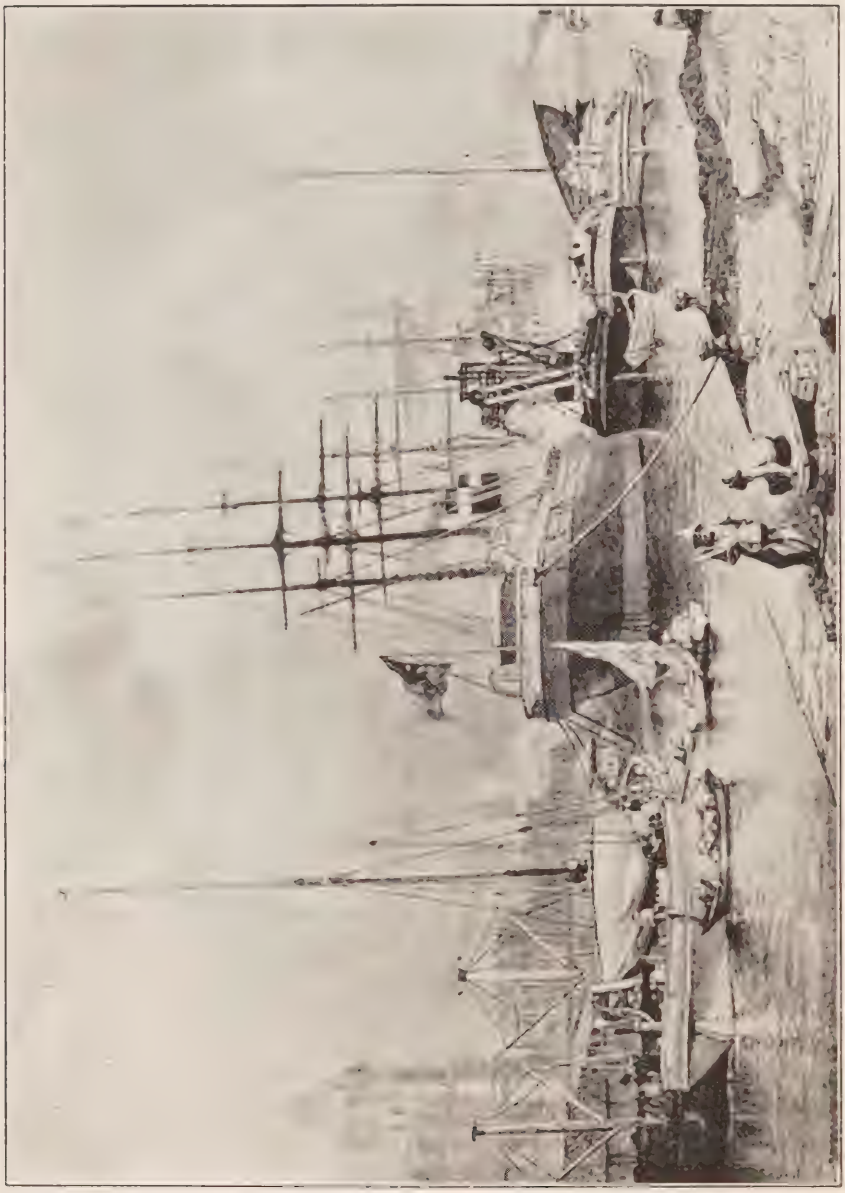
Certified
[illegible],
Secretary

On August 11th the port was visited by H.M.S. Australia, Flagship of the Australian Squadron, under command of Rear-Admiral G. F. Hyde. Officers and men, numbering upwards of 300 individuals, were guests of the City of Montreal and were entertained by individual citizens during a stay of several days in port.

On August 27th a large delegation from the Empire Parliamentarian Association visited the port and were guests of the Commissioners on board the yacht "Sir Hugh Allan." At the head of the delegation was the Rt. Hon. Viscount Peel, its Chairman, who was supported by Sir Robert Sanders, Major Guy Kindersley, and Sir William Lane-Mitchell.

Mr. Commissioner Alfred W. Lambert, in the absence of the President and of his colleague, Dr. Milton Hersey, welcomed the visitors to the harbour, expressing the satisfaction which he felt in receiving so large a body of representatives from the parliaments and legislatures of the Mother Country and far-off sister dominions as well as from the Indian Empire. He took occasion specially to emphasize the genius and tactfulness of British administrators as exemplified in their dealings with national traditions, faith and language in the Province of Quebec. In responding to the Commissioner's welcome, Lord Peel felicitated the Commissioner upon the status and loyalty of the people of French origin in Canada in their quality as citizens of the Empire. They had heard much in advance with regard to the harbour and port of Montreal, its setting and its manifold activities, and were especially interested in the revelation of a seaport situated 1,000 miles from the seaboard. Banteringly, Lord Peel described this situation as a paradox, since though the port was 1,000 miles from the ocean it was yet said to be nearer to European ports than such Atlantic seaboard ports as New York, Boston and Baltimore. "But," commented His Lordship, "this is a continent and a land full of paradoxes."

On August 29th the Harbour was visited by His Eminence Cardinal Luigi Sincero, accompanied by Mgr. G. Giacinto Parisio, D.D., Secretary, and by distinguished local ecclesiastics headed by Mgr. E. V. J. Piette, Rector, University of



The Port of Montreal when Steam was First Coming into Its Own

Montreal; Canon Adelard Harbour, Cure de la Basilique; Canon Adolphe Sylvestre, and Cure Oscar Gauthier; and by Dr. Louis de Lotbiniere Harwood. His Eminence manifested the liveliest interest in all the physical details of the harbour and its equipment and revealed an intimate knowledge of its historical background as well. It was something of a revelation to his hosts to find that His Eminence was able to communicate his inquiries and comments quite freely in faultless English.

On November 9th the Foreign Secretary of Great Britain, Rt. Hon. Sir Austin Chamberlain, P.C., M.P., accompanied by Lady Chamberlain and members of their family, visited the harbour and were guests of the Commissioners on board S.S. "Sir Hugh Allan." A thorough survey was made of all features of the port, occupying from eleven until two-thirty o'clock of that day. Sir Austin manifested the keenest interest in the work and procedure in the exercise of all of the functions of the harbour, including the receiving and discharging of grain and other commodities. A careful inspection was made of grain elevator No. 3. After luncheon, in replying to an address of welcome by the President, the Foreign Secretary, expressing at some length the special satisfaction which he felt in having an opportunity of inspecting in so intimate a way the workings of so great and notable a public utility, stated that his former conception of the vast possibilities and prosperity of the British Commonwealth was further stimulated and accentuated by all that he had seen within the Port of Montreal. He asserted that he was more impressed by his observations during the morning's trip than by any others made during the whole of his journeyings across the continent from the Pacific.

GRAIN ELEVATOR SYSTEM

The outstanding feature of the year's business in the Port of Montreal was the shipment of grain for export. With the seemingly inevitable growth which has been so typical of the past eight years in this respect, the total grain deliveries reached a figure never before attained. Exports of grain in 1928 passed the two hundred million bushel mark with deli-

veries from all four elevators of 211,295,379 bushels. The deliveries from each of the four grain elevators were as follows:

Grain Elevator	No. 1	46,393,901	bus.
" "	No. 2	62,517,346	"
" "	No. 3	47,856,010	"
" "	"B"	54,528,122	"
		211,295,379	"

Following as it did upon the extremely successful season of 1927, in which year grain deliveries amounted to 195,247,914 bushels, the Commissioners have been more than gratified at the performance of the grain elevator system in 1928. The first three months of the exporting season, May, June and July, were reasonably active, but thereafter, exports until the end of November exceeded all previous achievements, with an approximate total of 144,000,000 bushels delivered in four months.

Canal Vessels Berthed in Port

In October, receipts at the elevators amounted to 38,573,444 bushels, and deliveries to 37,802,396 bushels.

As the facilities of the Harbour for the handling and storage of grain in bulk have been increased, in conformity with the Commissioners' expressed policy, the stream of export grain through Montreal has been steadily and healthily growing. Not alone did 1928 set a new mark for total handling of grain, but the increased equipment and improved facilities provided to handle some five million tons of grain in seven months, functioned throughout the navigation season with precision and efficiency. The totals alone are important, but of equal importance to the grain trade and the shipping interests are the factors which make for smooth loading and absence of delays. The intricate commercial network of grain exporting is affected by many things, such as delayed charterings, demurrages to vessels, and inability to make loading in the half month contracted for. The Commissioners were pleased to note during 1928 that their grain system, including both the mechanical equipment and the co-ordination of official control, functioned with complete satisfaction.

Grain deliveries from the elevators in each year since 1921 have been as follows:—

1921	138,453,980	bus.
1922	155,035,817	"
1923	120,107,990	"
1924	165,139,399	"
1925	166,212,335	"
1926	135,897,882	"
1927	195,247,914	"
1928	211,295,379	"

In the seasonal operations at the grain elevator system, the following new high marks were set, each one of which is of importance when the year's work is being studied:—

Largest total receipts in any year.
Largest total deliveries in any year.
Greatest exports of wheat in any year.

Greatest volume of water-borne grain unloaded at the elevators.

Greatest volume of car-grain unloaded.

Largest single ship-load of grain ever to leave the Port.

The total deliveries, amounting to 211,295,379 bushels, were made up of the following quantities of various grains:—

Wheat	145,076,783 bus.
Barley	29,989,924 "
Oats	17,882,642 "
Rye	13,728,845 "
Corn	3,752,908 "
Flax	827,291 "

It will be seen that wheat occupies the position of premier importance, more than twice as much wheat having been shipped as of all the coarse grains combined. Deliveries of wheat have been increasing in the past few years, as the following table shows:—

Wheat Deliveries

1923	89,566,063 bus.
1924	117,931,271 "
1925	83,900,812 "
1926	91,771,734 "
1927	119,113,426 "
1928	145,076,783 "

To the foregoing figure, which is equivalent to 4,352,303 tons of wheat, must be added 13,819 tons of wheat shipped in bags, and 343,726 tons of flour, making a total of 4,709,848 tons of the most important foodstuff and its products which went out to consumers via the Harbour of Montreal in 1928.

Water and Rail Borne Grain

Although the number of vessels unloaded at the elevators in 1928 was less than in 1927, the quantity of grain they carried was slightly greater. The number of cars and the quantity of car-borne grain both increased considerably. As

delays at Montreal were appreciably less during 1928 than in any previous year, and a steady supply of ocean tonnage was at all times available during the season, the inference to be drawn is that the canal system between Port Colborne and Montreal was used to practically maximum extent. The importance of water-borne grain to the continued growth of Montreal as a grain-exporting Port cannot be too heavily stressed, and it is imperative that the canal tonnage, and the canal system itself, should be of sufficient size to accommodate all tonnage offering. For this reason, having in view the approaching completion of the new Welland Canal, the Harbour Commissioners of Montreal have been rendering active co-operation in the study of plans for a new terminal at Prescott.

The following table shows the division between water-borne and rail-borne grain of the total unloadings at the elevators in the past few years:—

	No. of Vessels	Bushels	No. of Cars	Bushels
1923	1,147	74,631,578	27,631	45,376,412
1924	1,606	112,020,615	28,276	53,118,784
1925	1,637	124,827,099	19,554	38,974,626
1926	1,471	104,674,724	16,684	31,223,158
1927	2,246	159,071,036	18,725	35,216,274
1928	2,156	163,429,223	30,231	53,887,651

Busy Grain Shipping Months

The fluctuation of grain flow outwards from Montreal was different in 1928 from previous years. The tendency previously was towards activity in May and June, with a lull in July and August, followed by intense activity until the close of the season. In 1928 May and June opened quietly, but July and August were unusually active, while the remaining months of the navigation season surpassed all previous records.

Deliveries by Months

	1927	1928
May	34,970,378	19,265,231 bus.
June	21,846,305	21,355,610 "
July	12,653,776	23,499,851 "
August	18,399,821	35,160,744 "
September	32,416,262	34,615,828 "
October	37,447,486	37,802,396 "
November	31,420,468	36,364,851 "

Record Daily Handling

On twenty-two days during the navigation season of 1928, the total daily receipts and deliveries from the grain elevators exceeded 3,000,000 bushels. The year's busiest day was September 9th, when receipts amounted to 1,760,417 bushels, and deliveries to 2,245,316 bushels, making a total handling

View of Canal Entrances and Windmill Point Basin, Showing Grain Elevator "B"

of 4,005,733 bushels. Details of the best days' work are given hereunder:—

1928	Receipts bus.	Deliveries bus.	Handling bus.
Aug. 2	1,454,264	1,939,260	3,393,524
" 7	1,660,208	1,537,037	3,197,245
" 9	1,631,552	2,123,813	3,755,365
" 21	1,429,915	2,017,082	3,446,997
Sept. 1	1,719,396	1,744,197	3,463,593
" 5	1,430,564	1,924,398	3,354,962
" 6	1,490,259	1,704,278	3,194,537
" 7	1,778,883	1,621,981	3,400,871
" 9	1,760,417	2,245,316	4,005,733
" 15	1,516,992	1,751,479	3,268,471
Oct. 4	1,308,603	1,799,362	3,107,965
" 20	1,411,063	2,166,393	3,577,456
" 21	1,796,629	1,681,626	3,478,255
" 25	1,122,389	2,202,476	3,324,865
" 28	1,652,797	1,678,779	3,331,576
" 31	1,572,665	1,470,233	3,042,898
Nov. 3	1,437,911	1,813,076	3,250,987
" 5	1,565,941	1,613,709	3,179,650
" 10	1,459,521	1,844,464	3,303,985
" 16	1,620,437	1,826,798	3,447,235
" 22	1,628,362	1,638,476	3,266,838
" 23	1,581,610	1,696,273	3,277,883

Destination of Export Grain

The grain exported from the Harbour of Montreal in 1928 was consigned to 21 different countries, in addition to which 7,747,561 was shipped of which the destination was unknown. Great Britain was not only the largest importer of wheat, with 34,166,684 bushels, but took the largest quantity of all grain, 42,277,247 bushels. Holland was the second largest buyer of grain, with 33,869,224 bushels, of which 18,190,760 bushels was wheat. Germany imported 30,457,927 bushels, of which 11,226,604 bushels was wheat. Italy was the second greatest

buyer of wheat, having taken 28,242,512 bushels, and about one million bushels of oats. Belgium took 23,282,921 bushels of grain, of which 14,578,037 bushels was wheat. The complete list is given at the end of the statistical grain tables,and other countries included are Denmark, Finland, France, Greece, Ireland, India, Morocco, Malta, Norway, Palestine, Portugal, Russia, Spain, Sweden, Syria and Turkey.

In the part of this Report devoted to Shipping will be found particulars of the largest shipment of grain ever to have been exported from the Harbour of Montreal, viz. 565,465 bushels.

New Storage Annex

The new storage and working-house annex to Grain Elevator No. 3, which has capacity of 3,000,000 bushels, was put into operation in 1928. Grain was first received in this new annex on October 24th, after which date it was completely filled, and was used during the remainder of the year as an integral part of the Grain Elevator system. The following is the capacity of the various grain elevators owned and operated by the Harbour Commissioners of Montreal:—

Grain Elevator	No. 1	4,000,000 bus.
" "	No. 2	2,662,000 "
" "	No. 3	5,000,000 "
" "	"B"	3,500,000 "
Total		15,162,000 "

SUMMARY OF GRAIN HANDLING

Grain Elevator No. 1—1928

	Receipts bus.	Deliveries bus.
January	.....	80,371
February	.....	78,205
March	.....	219,401
April	396,946	305,989
May	5,162,172	4,522,058
June	4,987,345	4,951,056
July	5,286,950	5,563,628
August	6,968,428	7,435,685
September	7,395,520	7,133,228
October	7,716,943	7,967,838
November	8,047,325	7,982,668
December	722,095	153,774
	46,683,724	46,393,901

	Receipts		Deliveries	
Water	41,301,142	bus.	Conveyor.	43,949,413 bus.
			Cars	1,562,299 "
Rail	5,382,582	"	Teams	849,423 "
			Bags	32,766 "
	46,683,724	"		46,393,901 "

First vessel unloaded April 24, 1928.
Last vessel unloaded December 12, 1928.

504 steamers
5 barges
} 509 vessels —41,301,142 bus.

1,406 C.N.R. cars
1,699 C.P.R. cars
} 3,105 cars — 5,382,582 "

46,683,724 "

SUMMARY OF GRAIN HANDLING

Elevator No. 2—1928

	Receipts bus.	Deliveries bus.
January	42,881	155,804
February	53,714	123,500
March	31,461	151,942
April	328,416	167,849
May	7,025,890	7,103,889
June	7,659,857	7,324,588
July	7,001,679	6,984,814
August	9,510,738	9,661,737
September	8,916,683	9,215,624
October	11,100,066	10,749,369
November	10,555,304	10,502,521
December	688,625	375,709
	62,915.314	62,517,346

	Receipts		Deliveries	
Water...	46,554,513	bus.	Conveyor....	58,014,946 bus.
			Cars.....	2,435,536 "
Rail.....	16,360,801	"	Teams.....	638,374 "
			Bags.....	1,428,490 "
	62,915,314	"		62,517,346 "

First vessel unloaded April 25th, 1928.
Last vessel unloaded December 3rd, 1928.

602 steamers 7 barges	609 vessels —	46,554,513 bus.
1,629 C.N.R. cars 7,154 C.P.R. cars	8,783 cars —	16,360,801 "
		62,915,314 "

SUMMARY OF GRAIN HANDLING

Grain Elevator No. 3—1928

	Receipts bus.	Deliveries bus.
January	.....	185,526
February	.....	218,477
March	.....	224,426
April	9,342	159,374
May	4,468,208	3,205,164
June	5,078,375	4,891,910
July	4,283,903	4,597,806
August	8,857,632	8,921,052
September	8,411,437	8,664,024
October	9,407,674	8,566,644
November	8,344,501	8,174,904
December	1,961,825	46,703
	50,822,897	47,856,010

Receipts		Deliveries	
Water.....	36,998,543 bus.	Conveyor..	46,267,901 bus.
		Cars.....	1,503,248 "
Rail.....	13,824,354 "	Teams....	84,861 "
		Bags.....	.....
	50,822,897		47,856,010

First vessel unloaded May 12th, 1928.

Last vessel unloaded December 5th, 1928.

509 steamers 10 barges	519 vessels	—36,998,543 bus.
1,198 C.N.R. cars 6,258 C.P.R. cars	7,456 cars	—13,824,354 "
		50,822,897 "

SUMMARY OF GRAIN HANDLING

Grain Elevator "B"—1928

	Receipts bus.	Deliveries bus.
January	.....	173,545
February	.....	44,766
March	.....	39,100
April	.....	138,395
May	4,952,776	4,434,120
June	5,680,099	4,188,056
July	6,555,620	6,353,603
August	8,789,228	9,142,270
September	9,702,975	9,602,952
October	10,348,761	10,518,545
November	9,960,527	9,704,758
December	904,953	188,012
	56,894,939	54,528,122

Receipts			Deliveries	
Water	38,575,025 bus.		Conveyor	53,196,743 bus.
			Cars	1,138,258 "
Rail	18,319,914 "		Teams	193,121 "
			Bags	.....
	56,894,939 "			54,528,122 "

First vessel unloaded May 2nd, 1928.

Last vessel unloaded December 3rd, 1928.

503 steamers 16 barges	519 vessels	—38,575,025 bus.
10,887 C.N.R. cars ..... C.P.R. cars	10,887 cars	—18,319,914 "
		56,894,939 "

SUMMARY OF GRAIN HANDLING

Grain Elevators 1, 2, 3 and "B"—1928

	Receipts bus.	Deliveries bus.
January	42,881	595,246
February	53,714	464,948
March	31,461	634,869
April	734,704	771,607
May	21,609,046	19,265,231
June	23,405,676	21,355,610
July	23,128,152	23,499,851
August	34,126,026	35,160,744
September	34,426,615	34,615,828
October	38,573,444	37,802,396
November	36,907,657	36,364,851
December	4,277,498	764,198
	217,316,874	211,295,379

Receipts		Deliveries	
Water	163,429,223 bus.	Conveyor	201,429,003 bus.
		Cars	6,639,341 "
Rail	53,887,651 "	Teams	1,765,779 "
		Bags	1,461,256 "
	217,316,874 "		211,295,379 "

First vessel unloaded April 24th, 1928.
Last vessel unloaded December 12th, 1928.

2,118 steamers 38 barges	2,156 vessels	163,429,223 bus.
15,120 C.N.R. cars 15,111 C.P.R. cars	30,231 cars	53,887,651 "
		217,316,874 "

Stock in Elevators (at 31st December, 1928)—13,400,464 bushels.

SUMMARY OF GRAIN RECEIPTS, ELEVATORS 1, 2, 3 & B—1928

	WHEAT	OATS	BARLEY	CORN	RYE	FLAX	OTHER	TOTAL Bushels
January	13,564	23,970	2,748	.....	90	....	2,509	42,881
February	998	44,014	2,779	2,327	3,596	....	....	53,714
March	1,454	28,666	.....	.....	.....	....	1,341	31,461
April	651,876	25,322	1,371	4,691	51,444	....	....	734,704
May	14,981,352	1,819,803	1,232,205	115,950	3,379,586	80,150	....	21,609,046
June	14,415,268	4,083,200	2,316,040	55,319	2,535,849	.....	.....	23,405,676
July	17,841,019	3,263,457	366,385	660,270	937,117	59,904	.....	23,128,152
August	26,619,607	2,139,023	1,837,762	1,096,985	2,353,680	78,969	.....	34,126,026
September	21,539,584	2,693,874	8,292,370	600,704	1,188,597	111,486	.....	34,426,615
October	25,126,170	1,380,697	9,509,629	20,225	2,467,132	66,996	2,595	38,573,444
November	26,719,395	2,149,424	6,347,858	179,276	1,151,298	336,297	24,109	36,907,657
December	2,739,593	452,453	212,276	224,084	591,191	50,324	7,577	4,277,498
	150,649,880	18,103,903	30,121,423	2,959,831	14,659,580	784,126	38,131	217,316,874

SUMMARY OF GRAIN DELIVERIES, ELEVATORS 1, 2, 3 & B—1928

	WHEAT	OATS	BARLEY	CORN	RYE	FLAX	OTHER	TOTAL Bushels
January	129,732	88,188	1,500	223,139	33,873	115,440	3,374	595,246
February	53,926	84,156	33,408	253,901	20,800	17,956	801	464,948
March	103,100	231,046	2,049	297,174	1,500	.....	.....	634,869
April	258,960	263,316	33,440	209,541	5,128	....	1,222	771,607
May	12,969,361	1,543,108	1,140,781	174,625	3,392,941	43,915	500	19,265,231
June	13,672,716	3,490,087	2,434,169	126,103	1,578,559	52,635	1,341	21,355,610
July	17,446,581	3,399,119	627,693	659,131	1,323,323	43,504	500	23,499,851
August	27,444,098	2,573,202	1,789,816	573,992	2,699,342	78,969	1,325	35,160,744
September	24,999,573	2,267,456	5,571,334	416,910	1,249,069	111,486	.....	34,615,828
October	23,621,460	1,889,107	9,532,863	408,145	2,283,825	66,996	.....	37,802,396
November	24,185,985	1,862,480	8,762,065	344,185	1,099,985	83,445	26,706	36,364,851
December	191,291	191,377	60,806	66,062	40,500	212,945	1,217	764,198
	145,076,783	17,882,642	29,989,924	3,752,908	13,728,845	827,291	36,986	211,295,379

SUMMARY OF GRAIN HANDLING
ELEVATORS 1, 2, 3 and "B"—1928

	C.N.R.	C.P.R.	Total Cars	Vessels	Receipts bus.	Deliveries bus.
January.....	11	17	28	.....	42,881	595,246
February...	16	15	31	.....	53,714	464,948
March.....	11	5	16	.....	31,461	634,869
April.....	23	27	50	8	734,704	771,607
May.....	1,151	857	2,008	241	21,609,046	19,265,231
June.....	158	483	641	296	23,405,676	21,355,610
July.....	644	703	1,347	273	23,128,152	23,499,851
August.....	1,705	2,026	3,731	362	34,126,026	35,160,744
September..	3,088	2,861	5,949	307	34,426,615	34,615,828
October.....	3,966	3,463	7,429	340	38,573,444	37,802,396
November...	3,475	4,219	7,694	302	36,907,657	36,364,851
December...	872	435	1,307	27	4,277,498	764,198
	15,120	15,111	30,231	2,156	217,316,874	211,295,379

Ocean Liner in Dry-dock

DIRECT TO VESSEL STATEMENT OF GRAIN EXPORTED SEASON OF 1928

Country	Wheat	Barley	Rye	Oats	Corn American	Buckwheat
Belgium	14,578,037	4,790,784	17,143	3,890,413	.....	6,544
Denmark	278,222	.....	716,790	.....	.....	.....
Finland	.....	.....	170,937	.....	.....	.....
France	4,485,345	.....	.....	28,235	.....	.....
Great Britain	34,166,684	3,469,119	291,429	4,022,783	327,232	.....
Germany	11,226,604	11,474,055	6,746,227	1,011,041	.....	.....
Greece	7,913,546	.....	.....	.....	.....	.....
Holland	18,190,760	8,994,248	2,258,718	4,382,207	25,714	17,577
Ireland	1,135,147	75,233	.....	189,089	.....	.....
Italy	28,242,512	.....	.....	1,177,320	.....	.....
India	253,867	.....	.....	.....	.....	.....
Morocco	112,608	.....	.....	.....	.....	.....
Malta	164,267	.....	.....	.....	.....	.....
Norway	1,898,065	246,609	2,697,819	102,512	19,979	.....
Palestine	61,599	.....	.....	.....	.....	.....
Portugal	2,299,711	.....	.....	.....	.....	.....
Russia	1,114,945	.....	.....	.....	.....	.....
Spain	6,631,913	.....	.....	.....	.....	.....
Sweden	1,567,410	.....	422,756	.....	.....	.....
Syria	596,364	.....	.....	.....	.....	.....
Turkey	766,474	.....	.....	.....	.....	.....
Unknown	7,747,561	.....	.....	19,118	.....	.....
Total (bushels)	143,431,641	29,050,048	13,321,819	14,822,718	372,925	24,121

SHIPPING

Navigation in 1928 opened on April 26th, which was somewhat later than the average, and continued to the latest date the records of the Port know, viz., to January 6th, 1929.

During the entire season, water levels in the Harbour and in the River St. Lawrence were higher than has been usual in recent years, with the result that vessels throughout the entire seven months of activity were enabled to load full cargoes.

It is noticeable that in recent years the average and the maximum tonnage of ships arriving at the Port of Montreal has increased in each year, and this was strikingly exemplified in 1928 when, for the first time in the Port's history, vessels of a gross tonnage of 20,000 tons called regularly at the Port. Moreover, while the number of vessels of all kinds decreased from the previous year, the net registered tonnage of both ocean-going and inland vessels increased by considerable proportions. Over a period of ten years, this trend is all the more noticeable. In 1919 there came to the Harbour 8,280 ships, with a net registered tonnage of 6,537,014 tons. In 1928 the number of ships was 7,480, having a net registered tonnage of 19,229,465 tons.

The total number of ocean-going ships which arrived during the season was 1,607, with net registered tonnage of 5,494,062 tons, the latter figure having established a new high total.

Another new record was established by the net registered tonnage of inland shipping for the year, which amounted to 13,735,403 tons, representing 5,873 ships.

Congestion was not experienced during the season. The greatest tonnage ever handled at the Harbour was unloaded and loaded expeditiously, and the season was fortunate in a complete absence of irritating delays or expensive interruptions to cargo-handling.

One of the most interesting developments of the year was the arrival of new tonnage flying the house flag of the Canadian Pacific Steamships. The passenger service of this

Tramp Ships in the Port of Montreal

Company was augmented by two new 20,000 ton "Duchess" ships, the first of four which will be placed in service on the Montreal route in 1929. Their freight services were increased by four new 10,000 ton vessels, having a speed of 14 knots.

The White Star Line, Canadian Services, added the fine new 20,000 ton ship, the S.S. Laurentic, to their Liverpool services.

The North German Lloyd, a company which has a record of many years of achievement to its credit in Trans-Atlantic shipping circles, inaugurated a passenger and freight service to Montreal, the agency in this Port being handled for them by the Robt. Reford Co. Ltd.

The Hamburg-American Line, whose name is well known to Trans-Atlantic passengers, operated a freight and passenger service to Montreal. This new service in the Company's undertakings was handled by the Inter-Continental Transport Services Ltd., who also were agents for a new service operated

Tramp Ship Arriving in Port

by the Red Star Line's S.S. Rosalind between Montreal and St. John's Newfoundland, via Charlottetown, P.E.I.

On October 10th a notable incident in the Port's business took place, when the largest cargo of grain ever to leave Montreal Harbour was shipped in the S.S. Emanuel Accame. This vessel loaded 565,465 bushels of grain.

During August the Harbour was honored by a visit from H.M.A.S. Australia, flagship of the Australian Navy. She berthed at Shed No. 6, and was the largest warship ever to have visited the Port.

During September two British cruisers, of the North Atlantic Squadron, H.M.S. Heliotrope and H.M.S. Wistaria, made their usual annual visit to Montreal.

In the same month the Ville D'Ys of the French Navy spent five days in port. In July H.M.C.S. Champlain of the Canadian Navy visited the port and remained for ten days.

Vessels from many nations traded to the Harbour during the year, and of interest was the first visit of a vessel flying the flag of the Irish Free State. British ships were, as usual, in the ascendant, with 1,153 vessels; Norwegian ships numbered 134; Italian ships, 90; Dutch ships, 58; Greek ships, 42; Danish ships, 30; American ships, 28; German ships, 25; French ships, 15; Swedish ships, 14. There were 4 Japanese and 4 Spanish vessels, 3 each from the Free City of Danzig and Jugo-Slavia, 2 Mexican vessels, and one each from Belgium and the Irish Free State.

HARBOUR OF MONTREAL

Statement showing the Nationalities and Net Tonnage of Sea-going Vessels that arrived in the Port of Montreal during the Season of 1928, which were navigated by 106,290 seamen.

Nationality	Number of Vessels	Net Tonnage
British	1,153	4,224,268
Norwegian	134	286,445
Italian	90	306,786
Dutch	58	156,410
Greek	42	112,298
Danish	30	54,309
American	28	127,166
German	25	96,338
French	15	36,337
Swedish	14	27,184
Japanese	4	17,076
Spanish	4	13,382
Danzig	3	15,309
Jugo-Sla	3	11,006
Mexican	2	6,473
Belgian	1	3,106
Irish Free State	1	169
Total	1,607	5,494,062

Of the above 1,585 were built of iron or steel with a net registered tonnage of 5,491,541 and 22 were built of wood with a net registered tonnage of 2,521.

HARBOUR OF MONTREAL

Combined Statement Showing the Number and Tonnage of all Vessels that Arrived in the Port of Montreal during the past Ten Years.

Year	TRANS-ATLANTIC		MARITIME PROVINCES AND NEWFOUNDLAND		INLAND		GRAND TOTAL	
	Vessels	Tonnage	Vessels	Tonnage	Vessels	Tonnage	Vessels	Tonnage
1919	702	2,041,638	84	137,642	7,499	4,357,734	8,280	6,537,014
1920	638	2,020,519	25	11,210	4,403	4,287,714	5,066	6,319,443
1921	807	2,598,494	157	293,462	4,577	6,843,494	5,541	9,735,450
1922	969	3,453,059	225	479,578	5,789	9,157,062	6,983	13,089,699
1923	892	3,221,781	190	461,939	5,609	8,195,308	6,691	11,879,028
1924	988	3,597,147	235	499,185	5,791	11,215,764	7,014	15,312,096
1925	1,040	4,744,793	215	359,520	5,957	9,678,163	7,212	14,782,476
1926	1,042	3,551,489	379	670,241	6,197	12,445,594	7,618	16,667,324
1927	1,231	4,252,325	379	740,161	6,188	12,375,564	7,798	17,322,444
1928	1,222	4,693,925	385	800,137	5,873	13,735,403	7,480	19,229,465

HARBOUR OF MONTREAL

Statement showing the classification of Vessels that arrived in the Port of Montreal during the past ten years from the Lower St. Lawrence and Maritime Provinces and Newfoundland

Year	Steamships		Schooners		Grand Total	
	No.	Tonnage	No.	Tonnage	No.	Tonnage
1919	62	134,971	22	2,671	84	147,642
1920	19	10,724	6	486	25	11,210
1921	151	292,870	6	592	157	293,462
1922	223	479,333	2	245	225	479,578
1923	187	461,645	3	294	190	461,939
1924	231	498,903	4	282	235	499,185
1925	215	359,520	..	..	215	359,520
1926	379	670,241	..	..	379	670,241
1927	379	740,161	..	..	379	740,161
1928	385	800,137	..	..	385	800,137

HARBOUR OF MONTREAL

Statement showing the classification of Trans-Atlantic Vessels that arrived in the Port of Montreal during the past ten years.

Year	Steamships		Ships and Brigs		Schooners		Grand Total	
	No.	Tonnage	No.	Tonnage	No.	Tonnage	No.	Tonnage
1919	702	2,041,638	..	....	..	....	702	2,041,638
1920	637	2,018,861	1	1,658	..	....	638	2,020,519
1921	807	2,598,494	..	....	..	....	807	2,598,494
1922	968	3,451,703	..	....	1	1,356	969	3,453,059
1923	892	3,221,781	..	....	..	....	892	3,221,781
1924	987	3,597,031	..	....	1	116	988	3,597,147
1925	1,040	4,744,793	..	....	..	....	1,040	4,744,793
1926	1,042	3,551,489	..	....	..	....	1,042	3,551,489
1927	1,231	4,252,325	..	....	..	....	1,231	4,252,325
1928	1,222	4,693,925	..	....	..	....	1,222	4,693,925

HARBOUR OF MONTREAL

Statement showing the dates of the Opening and Closing of Navigation, the First Arrival and the Last Departure for Sea; also the greatest Number of Vessels in the Port at one time, during the past ten years.

Year	Opening of Navigation	Closing of Navigation	First Arrival from Sea	Last Departure for Sea	Greatest number of Vessels in Port at one time			
					Seagoing		Inland	
					No.	Date	No.	Date
1919.....	April 14th	Dec. 12th	April 22nd	Dec. 10th	35	June 12th	54	Aug. 24th
1920.....	" 18th	" 11th	" 25th	" 11th	43	Aug. 18th	43	Sept. 14th
1921.....	March 29th	" 14th	" 21st	" 8th	78	Sept. 7th	43	July 16th
1922.....	April 13th	" 6th	" 24th	" 2nd	91	Oct. 24th	55	Aug. 21st
1923.....	" 29th	" 18th	May 3rd	" 1st	63	May 23rd	52	" 4th
1924.....	" 18th	" 12th	April 24th	" 3rd	80	Nov. 4th	43	June 17th
1925.....	" 10th	" 10th	" 16th	" 8th	62	Aug. 19th	46	Oct. 6th
1926.....	May 2nd	" 6th	May 3rd	" 6th	60	May 19th	66	Sept. 7th
1927.....	April 10th	Jan. 4/28	April 12th	" 6th	80	Oct. 20th	44	May 1st
1928.....	" 26th	" 6/29	" 26th	" 9th	61	Nov. 19th	43	Aug. 13th

HARBOUR RAILWAY TERMINALS

During the winter months there was a considerable improvement in the volume of traffic handled on the Harbour Terminals, as compared with 1927, the months of February and March being particularly active. This improvement was accounted for by increase in interchange traffic between the two terminals of the Canadian National Railways, and increase of outward rail shipments from the Harbour.

An interruption in the movement of traffic from the Eastern section of the Harbour terminals occurred prior to the opening of navigation. On April 8th, the river rose to unusual heights, flooding the tracks from Section 57 to the Eastern terminus, damaging the roadbed and overhead catenary line, and putting a stop to all railway traffic operations on this part of the Harbour until April 20th.

Transit Sheds and Railway Tracks in the Port

On April 25th the first import traffic was received on the Harbour terminals, from which date the traffic returns mounted steadily, reaching a level only exceeded once during the past ten years. The months of May and June gave returns about equal to those of last year, but thereafter, a constant increase was recorded throughout the season, bringing the total revenue cars received and forwarded to within 1,000 cars of the number handled in the record year of 1925. The total handling for the year was 240,622 cars. The meaning of this traffic movement may best be realized when it is noted that on certain days during the busy periods a train was either received or forwarded from the Harbour terminals every twenty minutes. The frequency of train movements, with the switching required to make up or break up these trains, and the considerable point to point movements within the Harbour terminals taxed the present facilities of the system to their utmost.

Analyzing the traffic returns during the season of navigation, certain factors of the increase are revealed which are worthy of record:—

The increased movement of rail-borne grain represents 40% or 6,236 cars of the total year's increase in revenue cars received. An unusual feature of this traffic movement was the large volume of mid-summer rail-hauled grain, over 2,000 cars having been received during the month of August. In 1927, practically no grain in cars was received at the terminals during the same month. This had a beneficial effect on the operations of the system by furnishing a traffic movement of large proportions during a period which is usually noticeable for a temporary lull in the operations of the railway system—a prelude to the Fall rush.

The new 3,000,000 bushel extension to Grain Elevator No. 3 was completed in time to take care of the late Fall rail-borne grain traffic. Almost twice as many cars were handled at that Elevator as in the previous season.

The expansion of interchange traffic between the Western and Eastern terminals of the Canadian National Railways—

already referred to—represented a large portion of the year's increase, about 40%, the general export traffic making up the balance.

There was also recorded a substantial increase in the number of revenue cars forwarded from the Harbour, attributable to the augmented movement of general import and domestic coal shipments.

A general idea of the import and export rail traffic, exclusive of grain, may be obtained from the returns of cars handled at the Harbour sheds, the figures—approximate—being 28,046 cars unloaded and 15,432 cars loaded, as compared with 24,141 and 14,348 cars in 1927.

The transportation of freight within the Harbour limits, which is handled on a tonnage basis, also gave increased results. This traffic consisted largely of the usual movement of coal and grain in bags, the latter having been supplemented this year by a large shipment consigned to India—an innovation in this service.

The one source of traffic which showed a shrinkage as compared with previous years was that routed via the Commissioners' industrial connection with the Canada Cement Company at Section 100, the returns of which showed a decrease of about 1,000 cars in comparison with 1927. As this decrease was mainly in the traffic for delivery on the Harbour, the inference is that this business suffered from competition of motor trucks.

Satisfactory service was obtained from the motive power, without any serious damage thereto, during the year. The running record of the electric locomotives shows 40,692 miles operated during 14,235 hours in service, this being equal to 44% of the total locomotive hours.

With the exception of a slight addition in trackage at the site of the new Montreal-South Shore Bridge, the result of re-arrangement of tracks, no constructional work of importance was completed during the year which affected the operations of the railway department.

The following table gives the mileage of Harbour railway tracks, and the number of cars handled during the past ten years:—

	Mileage of Harbour Railway	Number of Cars handled by Commissioners
1919	58.32	182,328
1920	58.34	174,181
1921	58.54	143,564
1922	58.77	200,593
1923	60.64	216,382
1924	63.24	225,377
1925	63.55	251,586
1926	65.19	205,481
1927	67.44	195,853
1928	67.99	240,622

The extent of the Harbour Commissioners' railway tracks at the end of 1928 is as follows:—

	Lin. ft.	Miles
South of Lachine Canal, Bickerdike Pier, Windmill Point Wharf and West	49,084	9.2962
To Guard Pier	10,400	1.9697
Sections 12 to 46, High Level, Main Line	57,079	10.8104
To Piers, Elevators, Crossovers and Sidings, etc	124,783	23.6331
Sections 35 to 46, Low Level, Main Line.	10,080	1.9090
Sections 46 to 101, High Level, Main Line	54,134	10.2526
To Wharves, Industries, etc	51,146	9.6867
At South Shore, St. Lambert	2,300	0.4356
Grand Total Tracks, end of 1928	359,006	67.9935
Grand Total Tracks, end of 1927	356,092	67.4414
Increase in 1928	2,914	0.5521

THE NEW BRIDGE

Work on the construction of the new Montreal South Shore Bridge was continued energetically during 1928. There follows a detailed summary of work done on this important undertaking during the year.

REPORT ON THE CONSTRUCTION SEASON

For the first time since construction work began, the substructure contractors did not have to await the clearing of the ice and the resumption of navigation before commencing their season's activity. All pier work in the water having been finished in 1927, there remained only the concrete viaduct, the retaining walls and the series of pedestals of the City Approach to complete. In March, therefore, when the snow had virtually disappeared, preliminary work was undertaken on those pedestals below St. Catherine Street which had already been poured last year. Stripping and cleaning of these was followed by excavation and piling for those further north, and by the early summer all pedestals up to the abutment No. 55 were completed. This abutment is the end of the steelwork and the beginning of the concrete viaduct which continues to Abutment No. 61, where the retaining walls and enclosed fill serve to bring the bridge road down to street grade. Some work on the footings of the columns supporting this viaduct had already been done, and this was quickly completed, after which the columns themselves with the beams, girders and slabs above were formed, reinforced and poured in proper sequence. This construction was of a complicated nature, and called for considerable care on the part of both contractors and engineers, but by the end of the summer it was all successfully accomplished. Various parts of the railings were left over for the coming year, but surface finishing was commenced after the stripping of the forms and steps were taken to protect special items during the winter. The excavation for the retaining walls followed that for the footings and September saw the walls completely poured. The closing

THE MAIN SPAN OF THE BRIDGE IS RAPIDLY APPROACHING COMPLETION

weeks of the autumn were devoted to the placing of filling material, the final dressing to level of the tops of the pedestals, and some work on the surface finishing of the granite-faced piers at St. Catherine Street.

Considerable demolition of property had naturally to be arranged for and carried out along the right-of-way previous to this construction, and due attention paid to questions of access both in regard to contractors' plant and local proprietors. Altogether some $195,000 was certificated on this substructure contract during the year, bringing it to virtual completion, only a few minor items and adjustments being outstanding.

Continuing on the City Approach, attention must be directed to the steel superstructure. Material began to arrive on the site in September, and very early in October the traffic on Craig Street was suspended while temporary timber towers were built. On the 13th October, the first permanent steelwork of this section was placed on these towers and the first span was across to the steel tower No. 27-28 by about the 19th. From this time onward the process of erecting steel towers and spans was continuous throughout the winter, Kent Street being crossed by the end of the calendar year. Some 2,084 tons had been placed by this date, despite some slowness due to the necessity of special protective operations at street crossings. Arrangements were made from time to time with the City Departments for the suspension or control of local traffic and every care was given to the protection of the public.

Passing now to St. Helen's Island, the situation there was that, as soon as ice conditions would permit, timber falsework towers were to be built between Piers 20 and 21 in order to carry the southern part of the steel span. The temporary work was therefore undertaken at the beginning of April and by the 16th the erection of the steel span was under way. Previous to this, since the middle of March, attention had been centred on placing minor material on the long series of spans which constitute the approach from the south shore to the Island, and such items as fences, curbs, aprons, trolley poles, manhole frames and covers, etc., were added to the structure. Gangs were also at work riveting on the spans

Steelwork on the South Main Pier at the end of 1928

already erected, and indeed this work and that of placing fences, etc., was carried on continuously all the 1928 season. Span 20-21 reached Pier 21 on the 17th May, and from this span the succeeding span was cantilevered, using the same process and detail as was found so successful last year for the spans from Piers 10 to 18, and thus avoiding falsework in the deep water, a hundred feet below deck level. On the 1st of June, the steel reached Pier 22 and on the 13th June the last of these south side spans was landed on its own seat on the Anchor Pier No. 23. About 2,000 tons had thus been placed in less than two months and everything was now ready for a start on the south anchor arm of the Main Span. Material for timber and steel falsework towers was brought forward as soon as enough bolting and riveting had been done to ensure safety, and these towers were placed while the riveting was being completed. The timber towers had special concrete footings to sit on, and for the steel bent, which had been previously used on the North side, two specially constructed subaqueous foundations had been built. These were concrete-filled steel cylinders sunk by Robertson & Janin under a subcontract from the Dominion Bridge Company. They were placed during May and June, checked for line and level by the Engineers, and after being allowed ample time to set were loaded with the steel posts on the 20th July. The falsework erection truss span, part of which had also been used on the North Side, was then erected, partly on the timber towers and then by cantilevering over the steel bent, to reach the main pier No. 24 on the 2nd August. The huge main shoe castings were then brought out and set in place on the pier. By the 7th, they were accepted as correct and by the 10th the structural shoes were in place above them. Erection of the anchor arm proper now commenced, the chords, floor steel, main posts, web members being placed substantially in that order. The work progressed rapidly and without interruption until the big traveller was again ready to dismantle in October to be re-erected on the Cantilever Arm. From this time on, material was placed simultaneously on both arms, a smaller traveller handling the members on the Anchor side. On the

7th December, the two finials were placed on the tip-top of the main posts and their aluminium-painted tips can be seen shining in the sun when the weather permits. By the 13th December the falsework bents had been removed, and on the 20th December the traveller was housed for the winter on the Cantilever Arm, and other equipment taken off or made safe. Splendid progress had thus been made with the work in this vicinity, but other work had been carried on with equal vigor during at least part of the time. As early as the 5th March, riveting gangs were busy on the North side, and preparations were under way for the resumption of erection on both anchor and cantilever arms on this shore. On the 15th March new material was actually being placed, and both arms were extended at rapid pace, the idea being to accomplish all the major programme on this side by the time the main span work on the south side could be begun. The brewery building

PART OF THE NEW BRIDGE BETWEEN ST. HELEN'S ISLAND AND THE SOUTH SHORE

was wrecked in April so that the Anchor Arm erection was not delayed, and by the 16th May this arm had reached its goal on the North Anchor Pier No. 26. Here, anchor ties, connecting to the buried girders, were ready to receive the trusses, and the wind anchors had been set and concreted. During the latter part of May, the span was jacked up to relieve the false-work bent, which was then taken out and shipped to the south side via the Lachine shops. On the 30th May, the span was jacked down again under delicate control and in the Engineers' presence, to permit the horizontal pins making the anchorage connection to be driven. This was very successfully done and a check on alignment was immediately undertaken. This also proved very satisfactory, showing only a small fraction of an inch between the centre of the steel span and the centre of the concrete pier which had been standing two years. The cantilever arm had meanwhile been hung out to five main panels, after which the big traveller was dismantled and transhipped to the other side, as already mentioned. Certain smaller parts such as crossbeams, sidewalk beams, brackets, skid girders, inspection ways, etc., were added during the next few weeks, but early in August the men were transferred to the south side of the channel,where they repeated on the south anchor and cantilever the good work they had done on the north.

The girders, truss spans, columns, floorsteel, stairs, fences and poles of the Island Ramp Approach were placed in the period 29 September--16 October, and a few finishing items were done to the Pavilion steel. By the end of the year the steel erected in place had reached the gross figure of 24,600 tons or about 77% of the total main contract, over 12,080 tons having been placed in the season under review. In the shops, fabrication was being carried on continuously at a rate sufficient to meet all the demands of the field forces, and slightly over 10,000 tons were accepted by the Inspectors and passed over the scales for shipment. The figures for fabrication totalled 29,354 tons at the end of the year, which represents some 92 per cent. of the total. Measured by payments certificated the steel contract advanced during 1928 from 52.5 to 79 per cent.

During the same season, the Dufresne Construction Company made definite headway with the concrete shell of the Pavilion Building on St. Helen's Island. Commencing early in June by stripping forms from the lower walls which had been constructed in the autumn of 1927, they proceeded with the re-establishment of their unloading wharves and mixing plant, and made their preparations for the supply and reception of materials. All the walls up to the dancing floor (El. 190) were formed during June, and by the 26th concrete was being poured. The slab for this floor was completed in July and the walls continued upward. The mezzanine floor and portions of the lower or main floor were next constructed, after which the towers and parapets were proceeded with. Pouring on the deck slab began on the 13th August, the north or down-stream half being kept consistently in advance of the south. Finally the towers were carried up above the deck, their roofs built and their ornamental terra cotta tiling applied. The steel sash was set in place and largely glazed, the interior terra cotta walls were constructed and some work on the outside finish attempted. Temporary protection covers, temporary drainage systems and temporary waterproofing were installed to carry the job through the winter, and a system of electric conduits and permanent sewers were incorporated into the work. Also some exterior grading was done, and material used in the construction of the neighbouring embankment for the Island Ramp. In this latter connection, the old barracks was demolished, the necessary excavation carried out and all the concrete work in piers and abutments completed ready for the steelwork, in addition to the placing of a small portion of the fill. The total work on the Island, inclusive of the Pavilion walls, floors, etc., and the substructure of the ramp, amounted to about $180,000 as measured by the Engineers' certificates, and the grand total certificated during the year reached $3,007,337.39.

COMMODITY TONNAGE STATEMENT

Very satisfactory progress was recorded during the year in total tonnage of merchandise moving inwards and outwards over the wharves of the Port. A new high total was reached of 12,589,126 tons, an increase of some 660,000 tons over the previous highest figure in this respect, made up as follows:—

Imports	2,543,685 tons
Exports	6,838,108 "
Domestic	3,207,333 "

The imports were less by about 150,000 tons than in 1927, but increases in some commodities made up for large shrinkages in two items. Imports of coals from Britain and Europe were less by 354,000 tons, and of Argentine corn by 69,800 tons. Decreases were also recorded in molasses, phosphates, sand, steel tyres, wire rods and yarns. Substantial increases, however, were experienced in general cargo imports, including coke, dry goods, furniture, gasoline, sheet glass, glassware, sheet iron, manganese ore, petroleum, coarse salt and toys.

Exports increased about 700,000 tons, partly represented by greater shipments of grain, but also largely augmented by increases in shipments of foodstuffs and manufactured articles of various kinds. Exports of automobiles and parts increased by 116,765 tons, of flour by 56,104 tons, of fruit by 27,151 tons, while smaller increases were recorded in exports of animal foods, asbestos fibre, cheese, corn starch, electrical apparatus, cured fish, liquors, machinery, nails, rolled oats, printing paper, rubber manufactures, and vegetables in tins.

The commodities listed under "Domestic" increased by about 155,000 tons over the previous year. Included in this list are many very important items, viz.:—Bituminous coal, 1,659,904 tons; crude oil, 250,868 tons; gasoline, 236,802 tons; refined sugar, 71,400 tons; gypsum, 53,997 tons; refined oil, 57,816 tons; hay, 39,118 tons; sand, 38,058 tons; steel billets, 26,775 tons; crushed stone, 26,739 tons; cement, 20,478 tons; structural steel, 13,884 tons; iron and steel bars, 11,445 tons.

While exact details of imports and exports are given in the subsequent tables, it is worth noting the extent of the movement of the more important commodities, viz.:—

Principal Imports

	Tons
Petroleum oil	797,533
Anthracite coal	366,588
Raw sugar	171,459
Bituminous coal	126,510
Manganese ore	99,303
Argentine corn	67,811
Dry goods	63,471
Gasoline	68,791
Sheet glass	38,025
Sand	31,792
Sulphur	31,147
Sheet iron	27,084
Coarse salt	26,891
Toys	24,139
Coke	18,758
Liquors	17,477
Molasses	16,937
Steel plates	16,186
Woodpulp	16,062
Tin plate	14,847
Glassware	14,546
Steel billets, etc	13,824
Iron and Steel bars	13,652
Phosphates	11,810
Furniture	11,293
Whiting	11,074
Wire rods	11,019
Fruit	11,865
Wines	10,852
Vegetables	10,812
Steel beams	10,738
Iron skelp	10,655
Crockery	10,006
Tea	9,359
Machinery	9,328
Binder twine	9,206
Fire brick	8,539
Chinaware	8,160
Flaxseed	7,906
Earthenware	7,011
Chemicals	6,566
Garden bulbs	6,106
Fish—canned, etc	6,046
Steel angles	5,968
Millinery	5,883
Nuts (Edible)	4,669
Dry colours	4,625

Principal Exports

	Tons
Wheat	4,316,768
Barley	697,201
Rye	373,011
Flour	343,726
Oats	255,575
Automobiles	145,027
Meat	60,125
Fruit	55,589
Printing paper	55,195
Lard	54,272
Cheese	51,872
Automobile parts	31,684
Rubber manufactures	30,406
Woodpulp	29,544
Cement	29,167
Copper	27,027
Rolled oats	14,343
Agricultural implements	12,299
Corn	11,135
Iron bars, etc	10,879
Liquors	9,546
Wrapping paper	7,202
Milk, in tins	8,094
Refined sugar	6,985
Acetic acid	6,969
Asbestos	6,273
Cereals	5,747
Oat feed	5,520
Fish	4,680
Oatmeal	4,377

The tabulation of tonnages is as follows:—

IMPORTS

COMMODITY	Total Tons	Distribution after Import: Rail	Vessel	Other
Acids, Various	**1,067**	63	326	678
Advertising Matter	**156**	62	24	70
Aeroplanes and Parts	**1,704**	1,229	...	475
Agricultural Implements	**122**	122	...	...
Alcohol	**291**	291	...	...
Alum	**312**	10	76	226
Alumino Ferric	**745**	11	...	734
Aluminum Foil	**200**	35	59	106
" Ingot	**40**	1	38	1
" Scrap	**35**	35	...	...
" Sheets	**177**	105	72	...
" Ware	**95**	26	34	35
" Wire	**3**	1	2	...
Amber	**2**	2	...	...
Ammonia	**258**	25	233	...
" Carbonate	**55**	...	...	55
" Muriate	**167**	...	69	98
" Nitrate	**1,431**	583	...	848
Ammunition	**19**	17	...	2
Anchors	**124**	20	5	99
Animal Foods	**127**	58	46	23
Antimony	**50**	20	...	30
Arrowroot	**35**	...	35	...
Artist Materials	**80**	54	15	11
Asbestos, Mfrs. of	**72**	8	5	59
Asphalt	**113**	13	...	100
Automobiles	**1,648**	203	...	1,445
Automobile Parts	**366**	299	...	67
Baby Carriages	**234**	73	68	93
Bags and Bagging, Jute	**1,452**	8	6	1,438
Barley, Pot	**20**	20	...	...
Barrels, etc., Empty	**4,042**	935	202	2,905
Barytes	**1,241**	43	32	1,166
Basic Slag	**89**	...	...	89
Basketware	**1,933**	1,225	337	371
Bath Brick	**24**	12	11	1
Baths	**11**	11	...	...
Batteries	**18**	15	1	2
Battery Plates	**1,110**	...	1,110	...
Beads, Glass	**95**	62	...	33

COMMODITY	Total Tons	Distribution after Import: Rail	Vessel	Other
Beans, Common	3,528	943	120	2,465
Beds and Bedding	5	4	1	...
Beers	1,427	56	1,016	355
Beer Coloring	5	5	...	...
Bees Wax	34	1	...	33
Bells	35	19	...	16
Belting	74	47	4	23
Bicycles and Parts, N.O.S.	500	461	11	28
Birdseed	24	12	12	...
Biscuits	596	277	128	191
" Dog	333	58	203	72
Black Lead	39	...	...	39
Blanc Fixé	213	23	...	190
Bleaching Powders	1,260	626	...	634
Boats, N.O.S.	173	13	...	160
Boiler Compound	183	3	...	180
" Parts	124	49	...	75
Bone Ash	19	11	...	8
Bone Black	39	...	...	39
Books	2,637	761	1,139	737
Boots and Shoes	1,845	877	316	652
Bottles, Empty, Common	969	114	759	96
" " Superior	42	...	...	42
" Thermos	971	461	104	406
Bottle Wrappers	20	...	...	20
Boxes, Empty	13	3	2	8
" Paper	38	9	28	1
Box Toes	8	...	...	8
Brass, Mfrs of	574	225	38	311
" Rods	110	11	...	99
" Scrap	30	...	...	30
" Sheets	33	7	...	26
" Tubing	398	227	4	167
" Wire	74	63	...	11
Brattice Cloth	25	25	...	...
Brewers Grain	3	...	...	3
Brick, Bath	8	...	...	8
" Fire	8,539	1,815	...	6,724
" Glazed	58	...	...	58
Bristles	4	3	...	1
Bronze Ingots	13	13	...	...
" Powder	89	55	...	34

COMMODITY	Total Tons	Distribution after Import: Rail	Vessel	Other
Bronze Wire	**38**	1	...	37
Brooms and Brushes	**188**	64	18	106
Bullion	**3**	...	...	3
Burlaps	**2,048**	480	145	1,423
Butter	**10**	1	...	9
Buttons	**98**	13	...	85
Cable	**65**	30	...	35
Calf Skins	**17**	...	...	17
Calks, Toe	**2**	...	...	2
Candles	**75**	15	8	52
Canned Goods, N.O.S.	**719**	465	164	90
Canvas	**39**	...	30	9
Canvas Hose	**37**	...	...	37
Capsules	**379**	186	19	174
Carbolic	**31**	31	...	...
Carbide, Calcium	**327**	36	...	291
Cardboard	**347**	189	43	115
Cars, Dump	**46**	46	...	...
Carpets	**3,349**	1,699	502	1,148
Casein	**55**	55	...	...
Casings, Sausage	**60**	45	...	15
Castings	**548**	278	...	270
Caustic Soda	**193**	...	...	193
Cedar Logs	**29**	29	...	...
Celluloid	**60**	38	2	20
" Mfrs. of	**226**	158	7	61
Cement	**100**	7	3	90
Chains	**924**	149	24	751
Chalk	**248**	149	3	96
" Precipitated	**108**	6	11	91
Charcoal, Granulated	**156**	56	...	100
Cheese	**846**	519	34	293
Chemicals	**6,566**	2,864	1,055	3,647
Chicory	**114**	8	2	104
Chinaware	**8,160**	3,359	1,561	3,240
Chloride, Barium	**16**	...	12	4
" Calcium	**821**	...	...	821
Church Ornaments	**161**	65	1	95
Cigars and Cigarettes	**106**	48	5	53
Clay, Burnt	**264**	39	16	209
" China	**3,464**	578	...	2,886
" Fire	**383**	169	...	214

COMMODITY	Total Tons	Distribution after Import: Rail	Vessel	Other
Clay, Mfrs. of	**16**	1	12	3
" Unmanufactured	**39**	...	...	39
Clocks	**2,785**	1,083	524	1,178
Clothes Pins	**120**	12	...	108
Coal, Anthracite	**366,588**	...	...	366,588
" Bituminous	**126,510**	...	...	126,510
Cobalt Oxide	**3**	3	...	...
Cocoa	**548**	50	176	322
" Beans	**2,040**	47	289	1,704
" Butter	**1,040**	137	824	79
Coconuts	**2,412**	37	372	2,003
Coffee	**2,796**	284	444	2,068
" Essence	**26**	1	12	13
Coffins	**2**	...	...	2
Coke	**18,758**	...	...	18,758
Confectionery	**1,678**	574	706	398
Copperas	**76**	...	2	74
Copper, Mfrs. of	**27**	21	4	2
" Rods	**25**	25	...	...
" Rollers	**84**	81	...	3
" Scrap	**145**	87	...	58
" Sheets	**80**	34	1	45
" Tubing	**81**	26	22	33
" Wire	**27**	27	...	...
Cordage	**380**	5	19	356
Corks	**199**	11	23	165
Corkwood	**2,186**	40	143	2,003
" Scrap	**2,969**	...	...	2,969
Corn, Argentine	**67,811**	...	10,442	57,369
Corn Starch	**9**	...	9	...
Cotton Waste	**187**	96	14	77
Cream Separators	**1,114**	434	568	112
Cream of Tartar	**187**	56	63	68
Crockery	**10,006**	4,916	1,403	3,687
Crucibles	**206**	54	68	84
Curling Stones	8	...	8	...
Custard Powder	**24**	13	5	6
Cutch	**12**	7	5	...
Cutlery	**375**	179	42	154
Cuttle Bone	**2**	2	...	...
Cyanides	**419**	399	...	20
Cylinders, Gas	**583**	40	20	523

COMMODITY	Total Tons	Distribution after Import: Rail	Vessel	Other
Degras	**135**	23	18	94
Dextrine	**256**	65	89	102
Disinfectants	**232**	48	115	69
Doors	**3**	3	...	...
Drugs	**1,617**	196	90	1,325
Druggist Sundries	**349**	139	46	164
Dry Colors	**4,625**	631	277	3,717
Dry Goods	**63,471**	28,583	7,768	27,120
Dyes	**665**	147	115	403
Earthen Drain Pipes	**51**	7	...	44
Earthenware	**7,011**	3,134	1,259	2,618
Ebony Logs	**34**	34	...	...
Effects, Settlers	**2,838**	1,722	68	1,048
Eggs	**797**	12	1	784
Electrical Apparatus	**2,096**	1,241	71	784
Electric Bulbs	**771**	26	11	734
Emery Cloth	**21**	14	4	3
" Powder	**25**	25	...	...
Enamelware	**1,196**	264	464	468
Engines, Oil	**475**	196	...	279
Epsom Salts	**580**	34	48	498
Exhibits	**287**	287	...	...
Extracts, N.O.S.	**40**	26	7	7
Farina	**36**	...	22	14
Feathers	**95**	71	2	22
Feldspar	**17**	...	...	17
Felt, Pressed	**409**	66	19	324
" Scrap	**19**	...	19	...
Ferro, Chrome	**77**	3	...	74
" Manganese	**375**	291	...	84
" Silicon	**39**	...	...	39
Fertilizers, N.O.S.	**538**	34	...	504
Fibres	**91**	37	36	18
Fibreboard	**2**	...	...	2
Filtermass	**69**	...	...	69
Fire Arms	**234**	163	2	69
Fish, Cured	**3,500**	2,121	694	685
" Fresh and Frozen	**3**	...	2	1
" in Tins	**2,543**	1,040	695	808
" Plates	**13**	...	...	13
Fishing Apparatus	**208**	161	20	27
Flax	**10**	...	3	7

COMMODITY	Total Tons	Distribution after Import: Rail	Vessel	Other
Flaxseed	**7,906**	6	...	7,900
Flour	**254**	79	57	118
" Potato	**1,409**	326	149	934
Fluorspar	**51**	...	...	51
Fly Catchers	**98**	39	29	30
Fruit, Dried	**5,724**	1,134	2,655	1,935
" in Brine	**1,188**	72	299	817
" in Tins	**577**	132	194	251
" Juices	**208**	6	1	201
" Pulp	**198**	4	160	34
" Raw	**3,970**	1,350	28	2,592
Fullers Earth	**951**	246	210	495
Furnace Parts	**8**	...	...	8
Furniture	**11,293**	7,758	1,402	2,133
Furs	**444**	231	1	212
Garden Bulbs	**6,106**	3,336	917	1,953
Gasoline	**68,791**	...	...	68,791
Gelatine	**523**	205	21	297
Ginger	**114**	2	5	107
Glass Jars	**18**	12	6	...
" Powdered	**10**	10	...	...
" Sheet	**38,025**	18,887	4,193	14,945
Glassware	**14,546**	4,217	1,910	8,419
Glue	**1,097**	369	393	335
Glycerine	**2,124**	379	...	1,745
Gramophone Records	**2**	2	...	...
Granite, Monumental	**1,722**	451	36	1,235
Granite Monuments	**1,392**	1,300	55	37
Grass, Dried	**28**	...	...	28
Grease	**78**	9	...	69
Grindstones	**736**	37	...	699
Groceries, N.O.S.	**265**	88	34	143
Gums	**389**	133	...	256
Gypsum	**406**	9	...	397
Hair	**21**	21	...	...
Handles, Wooden	**33**	8	24	1
Hardware, N.O.S.	**2,951**	1,461	355	1,135
Hatters' Fur	**336**	309	...	27
Hemp, Bales	**153**	30	23	100
Hemp Rope	**35**	26	1	8
Herbs	**166**	75	4	85
Hides, Green	**550**	320	...	230

COMMODITY	Total Tons	Distribution after Import: Rail	Vessel	Other
Hollow Ware	**429**	119	102	208
Honey	**2**	...	...	2
Hops	**399**	73	...	326
Incubators	**3**	3	...	...
Inks	**85**	9	16	60
Insect Powders	**26**	4	1	21
Instruments, Musical	**1,365**	925	241	199
" Mus. Pts	**21**	2	...	19
" Scientific	**293**	172	6	115
Insulators	**1,410**	118	323	969
Iron and Steel Bars	**13,652**	3,696	548	9,408
" Liquor	**3**	3	...	...
" and Steel, Mfrs. of	**1,832**	559	383	890
" Ore, Powdered	**40**	9	4	27
" Pig	**2,000**	45	50	1,905
" Pipe	**1,010**	149	4	857
" Sand	**58**	14	34	10
" Scrap	**1,852**	...	...	1,852
" Sheet	**27,084**	...	...	27,084
" Skelp	**10,655**	5,481	...	5,174
" Tanks	**33**	2	...	31
Isinglass	**6**	2	...	4
Jewellery	**93**	62	1	30
Jute Cloth	**5,945**	551	123	5,271
Lamp Black	**32**	..	...	32
Lamps and Lanterns	**157**	61	36	60
Lard	**9**	...	2	7
Lawn Mowers	**20**	17	...	3
Lead, Mfrs. of	**186**	63	63	60
" Nitrate of	**77**	6	9	62
" Oxide	**216**	187	...	29
" Pig	**88**	...	56	32
" Pipe	**72**	16	35	21
" Sheet	**6**	...	...	6
Leather, Bales	**511**	285	38	188
" Mfrs. of	**904**	433	86	385
" Scrap	**52**	52	...	...
Leaves, Dried	**50**	47	...	3
Lentils	**85**	7	31	47
Life Buoys	**11**	6	...	5
Lime	**1**	1	...	...
Lime, Chloride of	**500**	43	15	442

COMMODITY	Total Tons	Distribution after Import: Rail	Vessel	Other
Lime Stone	**226**	198	...	28
Linoleum	**597**	249	193	155
Liquors, Intoxicating	**17,477**	893	10,217	6,367
Litharge	**446**	20	121	305
Lithopone	**4,090**	931	267	2,892
Livestock	**76**	43	...	33
Lobsters, Tinned	**36**	3	14	19
Logwood Liquor	**30**	27	...	3
Macaroni	**84**	3	...	81
Machinery	**9,328**	5,982	546	2,800
Machines, Sewing	**408**	394	...	14
Magnesia	**200**	80	24	96
Magnesite	**204**	...	11	193
" Calcined	**110**	...	...	110
Mahogany	**281**	195	6	80
Malt	**131**	4	4	123
" Extract	**39**	31	8	...
Manganese Ore	**99,303**	...	99,301	2
Marble Blocks	**2,018**	160	2	1,856
" Chips	**1,345**	114	...	1,231
" Slabs	**558**	105	1	452
Marmalade	**37**	1	22	14
Matches	**292**	...	...	292
Meals, N.O.S.	**144**	16	...	128
Meat, Cured	**6**	4	2	...
" Extracts	**488**	97	...	391
" Fresh or Frozen	**526**	24	...	502
" in Tins	**1,386**	342	236	808
Meters	**76**	60	...	16
Mica	**2**	2	...	...
Milk in Tins	**89**	89	...	...
" Powdered	**16**	...	11	5
Millboards	**31**	10	...	21
Millinery	**5,883**	3,741	349	1,793
Mill Stones	**9**	3	...	6
Mill Sweepings	**27**	27	...	...
Mineral Waters	**2,979**	488	86	2,405
Molasses	**16,937**	94	35	16,808
Molassine Meal	**167**	95	21	51
Moss	**219**	152	12	55
Motor Boats	**603**	...	...	603
Motor Cycles	**44**	41	...	3

COMMODITY	Total Tons	Distribution after Import: Rail	Vessel	Other
Mustard	**322**	...	210	112
Mustard Bran	**8**	...	6	2
Mustard Seed	**112**	43	3	66
Nails	**74**	2	2	70
Naphthaline	**284**	8	16	260
Nickle	**105**	103	2	...
" Bichromate	**234**	234	...	...
" Sulphate	**41**	36	...	5
" Wire	**4**	...	...	4
Nitrate of Lime	**50**	...	...	50
Notions	**518**	273	98	147
Nuts and Bolts	**7**	4	1	2
" Edible	**4,669**	577	1,930	2,162
Nutmegs	**2**	...	2	...
Oakum	**14**	...	...	14
Oats, Rolled	**2**	...	...	2
Oil, Bean	**509**	12	4	493
" Castor	**638**	243	117	278
" Coconut	**434**	49	22	363
" Cod Liver	**612**	189	54	369
" Colza	**62**	1	...	61
" Creosote	**1**	...	...	1
" Essential	**227**	35	11	181
" Linseed	**33**	2	1	30
" Lubricating	**743**	596	27	120
" Oleo	**32**	32	...	...
" Olive	**1,351**	224	180	947
" Palm	**179**	34	...	145
" Petroleum	**797,533**	...	...	797,533
" Rape	**36**	1	2	33
" Sago	**13**	...	...	13
" Seal	**198**	18	13	167
" Sod	**3**	...	...	3
" Various, N.O.S.	**60**	24	...	36
" Whale	**116**	...	...	116
Oilcake Meals	**718**	700	...	18
Oilmans Stores	**432**	9	309	114
Ovaltine	**595**	...	595	...
Paints	**532**	159	132	241
Paper Bags	**45**	14	24	7
" Blotting	**109**	1	80	28
" Mfrs. of, N.O.S.	**3,356**	562	647	2,147

COMMODITY	Total Tons	Distribution after Import: Rail	Vessel	Other
Paper Printing	**1,233**	722	341	170
" Roofing	**5**	...	...	5
" Stock	**1,467**	1,040	...	427
" Wall	**528**	131	52	345
" Wrapping	**1,780**	312	507	961
Paris Green	**23**	1	10	12
Peanuts	**29**	...	...	29
Peas	**80**	3	20	57
" Split	**106**	...	...	106
Peat	**213**	213	...	...
Peels	**375**	43	126	206
Pepper	**325**	33	60	232
Perfumery	**849**	571	27	251
Phosphates	**11,810**	24	...	11,786
Photo Sundries	**228**	115	18	95
Piassava	**15**	15	...	...
Pickles	**385**	17	72	296
Pictures	**488**	213	36	239
Pimento	**197**	...	3	194
Pipe Fittings	**56**	44	1	11
Pipes, Tobacco	**532**	163	18	351
" " Clay	**35**	7	2	26
Pitch	**16**	3	...	13
Plaster	**300**	...	...	300
Plasticine	**14**	4	9	1
Plumbago	**6**	...	...	6
Polishes	**307**	44	163	100
Plywood	**65**	12	43	10
Potash	**557**	...	84	473
" Muriate of	**3,762**	1,828	1,281	653
" Nitrate of	**288**	16	124	148
" Sulphate of	**389**	188	201	...
Poultry	**68**	...	...	68
Preserves, N.O.S.	**520**	112	372	36
Printed Matter	**87**	57	1	29
Propellors	**10**	...	...	10
Pulleys and Blocks	**87**	69	5	13
Pulpboard	**40**	40	...	...
Pulpstones	**210**	190	...	20
Pumice Stone	**79**	...	17	62
Putty	**758**	149	23	586
Quarries	**502**	187	116	199

COMMODITY	Total Tons	Distribution after Import: Rail	Vessel	Other
Quartz	**88**	...	...	88
Quicksilver	**29**	27	...	2
Rabbits, Frozen	**3**	...	...	3
Radio Parts	**14**	3	...	11
Rags	**3,477**	363	408	2,706
Razors and Parts	**24**	10	2	12
Rennet	**20**	17	...	3
Resin	**76**	1	2	73
Rice	**590**	...	15	575
Rice, Unhulled	**1,175**	...	...	1,175
Rivets	**3**	...	...	3
Rope	**300**	71	57	172
Rope Scrap	**182**	172	10	...
Rubber, Crude	**77**	5	...	72
" Mfrs. of	**372**	182	37	153
" Scrap	**3**	3	...	...
" Substitutes	**30**	23	1	6
Saddlery	**62**	26	1	35
Sal Ammoniac	**234**	4	54	176
" " Skimmings	**26**	...	...	26
Salt Cake	**1,693**	955	99	639
Salt, Coarse	**26,891**	425	55	26,411
" Fine	**243**	103	117	23
Salts, Bath	**166**	12	144	10
" Fruit	**31**	15	...	16
" Glauber	**493**	...	19	474
" Health	**152**	10	142	...
" Rochelle	**55**	1	3	51
Saltpetre	**2,046**	3	1,987	56
Sand	**31,792**	...	...	31,792
Sauces	**651**	101	403	147
Sausages	**5**	2	2	1
Sawdust	**6**	...	...	6
Scales	**15**	8	...	7
Screws	**20**	...	...	20
Seaweed	**2**	1	...	1
Seed, Caraway	**86**	...	42	44
Seed, Rape	**45**	...	22	23
Seed, Garden or Field	**505**	265	43	197
Sheep Dip	**6**	2	...	4
" Skins	**46**	35	...	11
Shellac	**51**	...	...	51

COMMODITY	Total Tons	Distribution after Import: Rail	Vessel	Other
Ship Stores	**3**	...	...	3
Shortening	**24**	8	12	4
Silica	**89**	...	...	89
Silverware	**1,087**	473	86	528
Sisal	**897**	124	722	51
Slag, Ground	**33**	...	...	33
Slate	**27**	19	...	8
" Manufactured	**17**	...	...	17
Soap, Castile	**382**	202	73	107
" Common	**53**	34	6	13
" Liquid	**36**	20	7	9
" Powder	**24**	9	...	15
" Toilet	**319**	104	116	99
Soapstone	**127**	...	...	127
Soda	**766**	163	152	451
" Ash	**68**	3	...	65
" Chlorate of	**150**	...	...	150
" Nitrate of	**4,335**	612	247	3,476
" Phosphate of	**30**	30	...	...
" Silicate of	**96**	...	...	96
" Sulphate of	**8**	...	...	8
Soot	**21**	...	19	2
Speigeleisen	**1,501**	...	1,500	1
Spelter	**61**	...	...	61
Spices	**172**	3	20	149
Sponges	**19**	...	...	19
Sporting Goods	**260**	151	12	97
Starch	**361**	...	276	85
Stationery	**963**	442	271	250
Statuary	**691**	262	9	420
Stearine	**71**	38	...	33
Steel Angles	**5,968**	874	...	5,094
" Balls	**520**	393	...	127
" Bands	**767**	103	...	664
" Beams	**10,738**	...	...	10,738
" Billets and Blooms	**13,824**	42	114	13,668
" Channels	**1,903**	20	...	1,883
" Hoops	**1,912**	292	241	1,379
" Joists	**1,045**	...	...	1,045
" Plates	**16,186**	864	391	14,931
" Rails	**414**	...	...	414
" Sashes	**74**	69	...	5

COMMODITY	Total Tons	Distribution after Import: Rail	Vessel	Other
Steel Sheets	**1,002**	126	24	852
" Skelp	**113**	...	...	113
" Strips	**623**	14	...	609
" Structural, N.O.S.	**2,332**	397	...	1,935
" Tees	**89**	...	...	89
" Tubing	**3,121**	1,207	398	1,516
" Tyres	**2,809**	741	...	2,068
Stone Blocks	**231**	...	...	231
" Mfrs. of	**14**	8	...	6
" Unmanufactured	**2,585**	2,314	...	271
Stoves	**21**	15	...	6
Strawboard	**147**	106	8	33
Straw Covers	**85**	...	...	85
Sugar of Milk	**10**	...	...	10
Sugar, Raw	**171,459**	42	1,100	170,317
Sulphate of Alumina	**514**	261	102	151
" Ammonia	**151**	...	78	73
" Copper	**68**	...	...	68
" Sodium	**31**	...	...	31
Sulphur	**31,147**	...	...	31,147
Sundries	**539**	236	28	275
Superphosphate	**56**	...	...	56
Syphons	**24**	20	...	4
Syrups	**37**	3	14	20
Syrup, Corn	**288**	5	228	55
Talc	**241**	92	...	149
Tanners Bate	**17**	...	...	17
" Extract	**96**	45	...	51
Tallow	**15**	15	...	...
Tar	**137**	12	...	125
Tea	**9,359**	624	1,868	6,867
Teakwood	**24**	24	...	...
Telephone Apparatus	**65**	65	...	...
Threads	**712**	70	31	611
Tiles	**3,315**	672	471	2,172
Timonax	**76**	...	27	49
Tins, Empty	**366**	20	5	341
Tin Ingots	**738**	162	201	375
Tin, Oxide of	**25**	24	...	1
Tin Plate	**14,847**	3,219	...	11,628
Tinware	**209**	135	14	60
Tobacco Leaf	**250**	10	...	240

COMMODITY	Total Tons	Distribution after Import: Rail	Vessel	Other
Tobacco Mfrs. of	**273**	63	8	202
Tobacconists Sundries	**325**	54	5	266
Toilet Articles	**506**	39	165	302
Tomato Paste	**46**	...	...	46
Tools	**374**	116	58	200
Toys	**24,139**	9,337	4,791	10,011
Trucks	**49**	...	...	49
Trunks	**5**	2	...	3
Twine, Binder	**9,206**	3	7,701	1,502
" Cotton	**251**	37	21	193
" Hemp	**19**	...	1	18
" Jute	**4**	4	...	...
Typewriters	**3**	2	...	1
Umbrellas	**8**	3	1	4
Valises	**75**	44	...	31
Valves	**48**	26	...	22
Varnishes	**130**	13	17	100
Vegetables in Brine	**7**	...	...	7
" Dried	**5**	...	...	5
" in Tins	**2,543**	179	260	2,104
" Raw	**8,269**	1,317	...	6,952
Vinegar in Barrels	**72**	...	65	7
" Glass	**43**	3	28	12
Wagons, N.O.S.	**12**	2	...	10
Walnut Logs	**179**	145	6	28
Watches	**39**	4	3	32
Wax	**736**	5	...	731
Wheels	**365**	161	...	204
Whiting	**11,074**	4,762	321	5,991
Willows	**12**	12	...	...
Window Frames	**699**	532	...	167
" Shades	**29**	10	...	19
" Rollers	**45**	45	...	...
Wines	**10,852**	541	1,811	8,500
Wire, Barbed	**185**	...	57	128
" Cloth	**91**	5	1	85
" Coils	**4,365**	638	866	2,861
" in Barrels	**410**	3	134	273
" Mfrs. of	**34**	...	20	14
" Netting	**1,892**	543	202	1,147
" Rods	**11,019**	8,803	...	2,216
" Rope	**511**	313	48	150

COMMODITY	Total Tons	Distribution after Import: Rail	Vessel	Other
Woodenware	**1,123**	514	394	215
Woodpulp	**16,062**	2	16,060	...
Wood Wool	**14**	2	12	...
Wool	**1,493**	1,321	167	5
Wool Grease	**67**	...	2	65
" Greasy	**868**	184	1	683
" Scoured	**312**	218	68	26
" Tops and Noils	**2,009**	1,841	168	...
" Waste	**305**	120	12	173
Yarn, Jute	**1,103**	755	61	287
" N.O.S.	**1,245**	738	109	398
Zinc Plates	**1,836**	13	5	1,818
" Sheets	**649**	37	76	536
" White	**144**	...	...	144
Grand Total	**2,543,685**	207,541	219,886	2,116,258

EXPORTS

COMMODITY	Total Tons	Carried Before Export: Rail	Vessel	Other
Acetic Acid	**6,969**	6,953	...	16
Acetone	**8**	...	...	8
Acids, various	**6**	...	...	6
Adding Machines	**83**	83	...	...
Advertising Matter	**74**	31	2	41
Aeroplanes and Parts	**125**	4	...	121
Agricultural Implements	**12,299**	12,211	81	7
Alabastine	**39**	39	...	...
Alcohol, Industrial	**21**	15	...	6
Aluminum Cable	**17**	...	...	17
" Dross	**25**	...	...	25
" Ingots	**1,919**	1,919	...	...
" Scrap	**408**	315	52	41
" Sheets	**189**	189	...	...
" Ware	**77**	69	...	8
" Wire	**145**	42	103	...
Ammonia	**102**	...	102	...
" Sulphate of	**712**	712	...	...

COMMODITY	Total Tons	Carried Before Export		
		Rail	Vessel	Other
Ammunition	**78**	77	...	1
Animal Foods, N.O.S.	**1,766**	383	32	1,351
Animals, Small	**123**	123	...	...
Asbestos, Cement	**95**	60	...	35
" Fibre	**5,552**	5,552	...	...
" Mfrs. of	**559**	50	...	509
" Roofing	**8**	...	...	8
" Shingles	**38**	5	...	33
" Wool	**21**	21	...	...
Asphalt	**9**	7	...	2
" Shingles	**388**	54	...	334
Automobiles	**145,027**	143,169	...	1,858
" Parts	**31,684**	31,646	...	38
" Springs	**192**	119	...	73
Axles	**23**	23	...	...
Babbit	**30**	...	30	...
Baby Carriages	**3**	2	...	1
Bags and Bagging, Jute	**2,028**	26	1	2,001
Bags, Paper	**117**	6	11	100
Baking Powder	**64**	...	64	...
Balsam	**3**	...	...	3
Barley, Pot	**3**	...	...	3
Barley, Meal	**246**	246	...	...
Barrels and Drums, Empty	**3,312**	2,235	119	958
Baths	**3**	2	...	1
Batteries	**815**	499	248	68
Battery Plates	**11**	...	11	...
Beads, Glass	**68**	68	...	...
Beans	**18**	...	...	18
Bedding	**1,051**	240	4	807
Beers	**95**	12	...	83
Belting	**35**	30	3	2
Bicycles and Parts	**337**	334	...	3
Bird Seed	**7**	...	7	...
Biscuits	**25**	14	...	11
Black Boards	**5**	...	...	5
Blocks, Maple	**327**	322	...	5
Boats	**33**	28	...	5
Boiler Compound	**67**	...	54	13
" Parts	**76**	...	...	76
Bone Black	**112**	112	...	...
Books	**112**	86	...	26

COMMODITY	Total Tons	Carried Before Export: Rail	Vessel	Other
Boots and Shoes	**49**	19	...	30
Bottles, Empty	**921**	305	25	591
" Thermos	**7**	5	2	...
Box Board	**1,531**	1,521	...	10
Boxes, Empty	**73**	24	14	35
" Paper	**185**	101	...	84
Brake Shoes	**17**	17	...	...
Bran	**1,317**	316	...	1,001
Brass, Mfrs. of	**36**	...	4	32
" Rods	**9**	...	5	4
" Scrap	**611**	...	17	594
Brick, Fire	**9**	4	...	5
Bronze Powder	**114**	...	5	109
" Wire	**29**	12	...	17
Brooms and Brushes	**142**	57	84	1
Bullion	**5**	...	...	5
Butter	**208**	50	...	158
Buttermilk	**993**	119	...	874
Buttons	**2**	2	...	...
Calks, Toe	**4**	...	...	4
Canned Goods, N.O.S.	**1,032**	799	93	140
Capsules	**150**	21	10	119
Carbide	**1,240**	1,240	...	...
Carborundum Sand	**1,805**	1,805	...	...
Cardboard	**11**	2	...	9
Carpets	**81**	58	...	23
Casings, Sausage	**1,068**	741	34	293
Castings	**304**	294	...	10
Catsup	**577**	501	61	15
Cattle	**120**	104	...	16
Celluloid	**60**	60	...	...
" Mfrs. of	**8**	7	...	1
Cement, Building	**29,167**	21	...	29,146
" Roofing	**40**	1	...	39
Cereals	**5,747**	5,720	...	27
Chains	**428**	414	...	14
Cheese	**51,872**	4,975	...	46,897
Chemicals, N.O.S.	**170**	109	43	18
Chicory	**8**	...	...	8
Chinaware	**11**	6	...	5
Church Ornaments	**4**	3	...	1
Cigars and Cigarettes	**5**	...	...	5

COMMODITY	Total Tons	Carried Before Export		
		Rail	Vessel	Other
Clay, Fire	**16**	...	...	16
Clocks	**42**	40	...	2
Clothes Pins	**335**	335	...	...
Coal Tar	**41**	41	...	...
Cobalt Ore	**825**	825	...	...
" Oxide	**46**	46	...	...
" Residue	**12**	12	...	...
" Salts	**9**	9	...	...
" Sulphate	**2**	2	...	...
Cocoa	**86**	...	...	86
Coconuts	**10**	...	...	10
Coffee	**18**	17	...	1
Coffins	**24**	7	9	8
Condensers	**5**	...	...	5
Confectionery, N.O.S.	**565**	99	321	145
Containers	**12**	...	12	...
Copper Billets	**7,833**	1,319	6,514	...
" Matte	**18,943**	18,943	...	...
" Scrap	**85**	...	20	65
" Sheets	**28**	...	26	2
" Tubing	**5**	1	...	4
" Wire	**153**	65	...	88
Cordage	**8**	7	...	1
Corn, Cracked	**295**	...	...	295
" Meal	**112**	6	...	106
" Starch	**1,163**	1,095	68	...
Cotton Waste	**58**	...	8	50
Cream	**4**	...	...	4
" Separators	**104**	98	5	1
Crockery	**8**	...	...	8
Crucibles	**4**	...	...	4
Cutlery	**7**	3	...	4
Cyanide	**519**	519	...	...
Cylinders, Empty	**35**	14	3	18
Dextrine	**156**	156	...	...
Disinfectants	**2**	...	...	2
Dolomite	**204**	204	...	...
Doors	**236**	225	...	11
Dowels	**508**	508	...	...
Drugs and Medicines	**675**	348	80	247
Druggist Sundries	**137**	84	...	53
Dry Colors	**768**	...	...	768

COMMODITY	Total Tons	Carried Before Export: Rail	Vessel	Other
Dry Goods	**1,776**	1,040	113	623
Dyes	**56**	14	15	27
Earthenware	**278**	166	75	37
Effects, Settlers,	**1,223**	580	27	616
Eggs	**1,391**	1,280	4	107
Egg Fillers	**47**	47	...	...
Electrical Apparatus	**1,532**	202	1,264	66
Electric Ranges and Parts	**2,486**	2,197	3	286
Enamelware	**9**	8	1	...
Engines, Oil	**91**	83	...	8
Exhibits	**118**	112	...	6
Extracts	**208**	178	12	18
Feathers	**19**	19	...	...
Feldspar	**36**	36	...	...
Felt	**235**	223	...	12
Ferro Silicon	**6**	6	...	...
Fibre Board	**218**	194	...	24
Fish, Cured	**3,589**	524	...	3,065
" Fresh or Frozen	**464**	456	5	3
" in Tins	**627**	611	...	16
" Meal	**1,023**	1,023	...	...
Fishing Apparatus	**7**	7	...	...
Flax	**18**	...	...	18
" Screenings	**28**	28	...	...
" Tow	**41**	**41**	...	...
Flooring, Hardwood	**1,106**	879	...	227
Flour	**343,726**	195,510	...	148,216
Flour, Corn	**248**	248	...	...
Flour, various, N.O.S.	**373**	343	20	10
Forgings	**437**	437	...	...
Fruit, Dried	**94**	90	...	4
" in Tins	**687**	540	113	34
" Jars	**301**	284	...	17
" Juices	**206**	154	2	50
" Pectin	**1,105**	1,105	...	...
" Pulp	**37**	37	...	...
" Raw	**49,273**	48,949	...	324
" Raw, in Blls	**3,886**	3,768	...	118
" Salts	**51**	...	51	...
" Syrups	**19**	19	...	...
Furnace Parts	**59**	13	46	...
Furniture	**2,849**	2,532	35	282

COMMODITY	Total Tons	Carried Before Export: Rail	Vessel	Other
Furs	**300**	130	...	170
Fur Waste	**34**	...	...	34
Garden Bulbs	**7**	2	3	2
Gasoline	**364**	5	...	359
Gelatine	**6**	...	...	6
Glassware	**202**	63	5	134
Glucose	**413**	281	132	...
Glue	**29**	2	14	13
Grain in Bags:—				
Corn	**693**	23	...	670
Oats	**10,829**	3,815	...	7,014
Wheat	**13,819**	...	...	13,819
Grain in Bulk:—				
Barley	**697,201**	...	697,201	...
Buckwheat	**579**	...	579	...
Corn	**10,442**	...	10,442	...
Oats	**244,746**	...	244,746	...
Rye	**373,011**	...	373,011	...
Wheat	**4,302,949**	...	4,302,949	...
Granite	**3**	3	...	...
Graphite	**155**	151	...	4
Grease	**434**	299	104	31
Grindstones	**20**	18	...	2
Groats	**58**	58	...	...
Groceries, N.O.S.	**105**	...	40	65
Gums, Chewing	**193**	182	8	3
Gypsum, Plaster	**2,098**	2,080	...	18
Hair	**1,240**	1,222	...	18
Handles, Wooden	**788**	760	2	26
Hardware	**726**	533	108	85
Hatters Fur	**7**	7	...	...
Herbs	**10**	10	...	...
Hides	**59**	54	...	5
Honey	**584**	216	87	281
Hops	**849**	822	...	27
Horse Shoes	**178**	...	4	174
Horses	**91**	8	7	76
Incubators	**115**	115	...	...
Inks	**115**	4	86	25
Insect Powders	**49**	49	...	...
Instruments, Musical	**1,148**	826	56	266
" Musical Parts	**273**	273	...	...

COMMODITY	Total Tons	Carried Before Export: Rail	Vessel	Other
Instruments, Scientific	**30**	29	...	1
Insulators	**183**	183	...	...
Iron Balls	**6**	6	...	...
" Bars	**916**	147	...	769
" Mfrs of	**208**	124	57	27
" Piping	**3,595**	2,531	...	1,064
" Scrap	**6,154**	209	...	5,945
Jewellers' Sweepings	**81**	81	...	...
Kalsomine	**389**	257	130	2
Lamps and Lanterns	**81**	21	42	18
Lard	**54,272**	54,146	3	123
Lawn Mowers	**76**	47	...	29
Lead, Sheet	**12**	...	12	...
Leather Board	**244**	186	...	58
" in Bundles	**583**	463	33	87
" Mfrs of	**18**	4	5	9
Lime	**206**	200	...	6
Linoleum	**326**	...	...	326
Liquors	**9,546**	8,951	422	173
Lobster, in Tins	**449**	397	...	52
Lumber	**636**	450	...	186
Lye	**11**	...	11	...
Macaroni	**491**	111	21	359
Machinery	**2,699**	2,462	10	227
Machines, Sewing and Parts	**5,417**	5,280	...	137
Magnesia, Milk of	**1,071**	393	668	10
Magnesite	**1,326**	1,326	...	...
Malt	**70**	...	20	50
Maple Strips	**1,179**	1,179	...	...
Marble	**16**	16	...	...
Match Splints	**2,123**	2,123	...	...
Matches	**6**	6	...	...
Meals, N.O.S	**1,144**	208	...	936
Meat, Cured	**56,449**	55,262	815	372
" Extracts	**49**	...	...	49
" Fresh or Frozen	**1,086**	904	...	182
" in Tins	**2,541**	2,321	1	219
Meters	**183**	106	77	...
Mica	**14**	14	...	...
Middlings	111	7	...	104
Milkaroni	**76**	76	...	...
Milk, in Tins	**8,094**	8,028	...	66

COMMODITY	Total Tons	Carried Before Export: Rail	Vessel	Other
Milk, Powdered	**1,292**	1,283	...	9
Millinery	**28**	13	...	15
Mineral Waters	**111**	50	...	61
Molassine Meal	**5**	...	...	5
Motorboats	**61**	56	5	...
Motorcycles	**328**	327	...	1
Mustard	**15**	11	...	4
Nails	**2,732**	134	31	2,567
Naphthaline	**74**	...	...	74
Nickle Cathodes	**94**	94	...	...
" Ingots	**823**	823	...	...
" Ore	**222**	222	...	...
" Oxide	**442**	442	...	...
" Silver	**5**	...	...	5
" Shot	**551**	551	...	...
Nuts and Bolts	**520**	9	11	500
Nutmegs	**27**	22	1	4
Oat Feed	**5,520**	5,520	...	...
" Hulls	**60**	60	...	...
Oatmeal	**4,377**	4,377	...	...
Oats, Rolled	**14,343**	14,297	...	46
Oil Cake	**3,435**	116	37	3,282
" Cod Liver	**7**	3	2	2
" Corn	**54**	37	17	...
" Fusel	**11**	11	...	...
" Lard	**18**	18	...	...
" Lubricating	**242**	100	41	101
" Mutton	**7**	7	...	...
" Oleo	**1,145**	1,093	26	26
" Olive	**3**	3	...	...
" Prune	**23**	23	...	...
" Rape	**17**	17	...	...
" Seal	**23**	...	17	6
" Various, N.O.S.	**191**	89	60	42
Oilman's Stores	**10**	...	10	...
Oxides	**11**	...	...	11
Oxygen	**6**	...	...	6
Paints	**1,025**	46	36	943
Paper Board	**725**	624	...	101
" Mfrs. of	**571**	393	9	169
" Printing	**55,195**	54,988	13	194
" Roofing	**1,570**	557	...	1,013

COMMODITY	Total Tons	Carried Before Export		
		Rail	Vessel	Other
Paper Wall	**980**	493	259	228
" Wrapping	**7,202**	6,948	16	238
Peanuts	**167**	155	12	...
Peas	**630**	630	...	...
" Split	**9**	8	...	1
Pegwood	**58**	58	...	...
Perfumery	**2**	...	...	2
Phosphates	**72**	72	...	...
Phosphorus	**2,149**	2,149	...	...
Photo Supplies	**838**	825	...	13
Pickles	**88**	84	...	4
Pictures and Frames	**40**	10	...	30
Pipe Fittings	**273**	163	11	99
Pipes, Tobacco	**4**	...	...	4
Pitch	**49**	30	...	19
Plaster Board	**2,200**	2,139	...	61
Polishes	**81**	3	64	14
Potash	**15**	...	...	15
Poultry	**46**	2	...	44
Preserves	**7**	...	3	4
Printed Matter	**95**	20	6	69
Pulleys	**2**	2	...	...
Pulpboard	**2,096**	2,096	...	...
Putty	**12**	...	...	12
Radiators	**124**	30	65	29
Radio Parts	**104**	92	5	7
Rags	**1,125**	9	398	718
Razor Parts	**17**	2	...	15
Refrigerators	**1,640**	1,300	66	274
Releaseall	**12**	...	...	12
Resin	**6**	3	3	...
Rice	**246**	...	...	246
Rivets	**57**	...	11	46
Roofing, Metallic	**44**	...	...	44
Roots	**13**	13	...	...
Rope	**21**	12	...	9
Rubber, Mfrs. of	**30,406**	24,985	3,295	2,126
" Scrap	**25**	...	...	25
Safes	**2**	...	...	2
Sal-Ammoniac	**57**	...	...	57
Salts, Bath	**4**	...	...	4
Salt, Coarse	**38**	16	22	...

COMMODITY	Total Tons	Carried Before Export		
		Rail	Vessel	Other
Salt, Fine	**1,491**	1,319	72	20
Salts, Health	**14**	...	12	2
Sand	**50**	...	...	50
Sauces	**53**	7	...	46
Sausages	**22**	21	...	1
Sawdust	**7**	...	...	7
Scales	**85**	80	...	5
Screenings	**2,057**	2,057	...	...
Screws	**8**	...	...	8
Seeds	**1,089**	605	477	7
Seneca Root	**39**	37	...	2
Shawinigan Black	**712**	712	...	...
Sheep Skins	**26**	19	3	4
Shingles, N.O.S.	**170**	26	...	144
Ship Stores	**9,692**	...	...	9,692
Shoe Counters	**145**	10	...	135
" Shanks	**20**	11	...	9
Shooks	**720**	676	...	44
Shortening	**88**	27	58	3
Shorts	**368**	42	...	326
Silicon Ware	**6**	6	...	...
Silver Ore	**8**	2	...	6
Silverware	**12**	6	...	6
Skewers	**62**	62	...	...
Soap, Common	**20**	...	15	5
" Liquid	**6**	2	...	4
" Powder	**246**	52	137	57
" Toilet	**1,481**	129	1,332	20
" Stock	**105**	105	...	...
Soapstone	**226**	226	...	...
Soda	**104**	41	37	26
Soda Pulp	**364**	364	...	...
Solder Dross	**10**	10	...	...
Soups in Tins	**427**	373	...	54
Spikes	**210**	...	...	210
Spoolwood	**103**	103	...	...
Sporting Goods	**67**	2	50	15
Staples, Metal	**383**	234	...	149
Starch	**408**	257	151	...
Stationery	**114**	51	26	37
Statuary	**7**	5	...	2
Stellite	**3**	2	...	1

COMMODITY	Total Tons	Carried Before Export: Rail	Vessel	Other
Steel Angles	**10**	...	...	10
" Bands	**121**	119	...	2
" Beams	**7**	...	...	7
" Hoops	**4**	4	...	...
" Mfrs. of	**7**	...	...	7
" Plates	**66**	6	...	60
" Rails	**109**	...	...	109
" Sheets	**578**	558	...	20
" Strips	**6**	5	...	1
" Structural	**107**	85	...	22
" Tubing	**13**	13	...	...
Stone, Mfrs. of	**6**	6	...	...
Stoves	**322**	290	...	32
Stove Pipes	**30**	...	18	12
Strawboard	**29**	29	...	...
Sugar of Milk	**15**	15	...	...
" Refined	**6,985**	...	...	6,985
Sundries	**6,935**	635	4,764	1,536
Sweeping Powder	**21**	...	...	21
Syrup, Corn	**846**	846	...	...
" Maple	**85**	54	3	28
Talc	**554**	554	...	...
Tallow	**43**	43	...	...
Tar	**17**	...	...	17
Tarvia	**10**	...	...	10
Tea	**100**	...	1	99
Thread	**32**	6	...	26
Tiles	**96**	25	71	...
Tin, Ashes	**4**	...	...	4
Tins, Empty	**69**	27	5	37
Tin Scrap	**92**	92	...	...
Tinware	**111**	6	101	4
Tobacco, Leaf	**394**	358	24	12
" Mfrs. of	**5**	2	...	3
Tobacconists' Sundries	**32**	32	...	...
Toilet Preparations	**288**	25	203	60
Tomato Paste	**6**	...	...	6
Tools	**788**	652	29	107
Tooth Picks	**10**	10	...	...
Toys	**126**	59	65	2
Tractors	**913**	860	53	...
Tractor Engines	**491**	491	...	...

COMMODITY	Total Tons	Carried Before Export		
		Rail	Vessel	Other
Trucks	**786**	786	...	...
Trunks	**75**	4	...	71
Turpentine	**4**	4	...	...
Twine, Binder	**602**	602	...	...
" Cotton	**31**	28	...	3
Typewriters	**19**	14	...	5
Umbrellas	**5**	1	...	4
Valves	**450**	44	52	354
Varnishes	**116**	8	5	103
Vegetables in Tins	**4,845**	3,033	499	1,313
" Raw-Green	**35**	...	...	35
Veneers	**9**	9	...	...
Vinegar in Bbls	**138**	26	83	29
Wagons	**56**	27	...	29
Wallboard	**3,137**	3,075	...	62
Washers, Metal	**24**	13	...	11
Washing Compounds	**221**	10	46	165
" Machines	**191**	184	...	7
Watches	**3**	3	...	...
Wax	**4**	4	...	...
Wheels	**449**	313	19	117
Whiting	**2**	...	...	2
Window Frames	**2**	2	...	...
Window Shades	**165**	165	...	...
Wines	**59**	6	...	53
Wire in Barrels	**969**	20	60	889
" Barbed	**980**	803	...	177
" Cable	**477**	410	13	54
" Cloth	**114**	38	54	22
" Fencing	**905**	765	91	49
" Ingots	**38**	38	...	...
" Mfrs. of	**20**	...	13	7
" Netting	**43**	3	...	40
" Rods	**12**	...	...	12
" Rope	**13**	4	...	9
" Steel Coils	**4,401**	2,196	13	2,192
Woodenware	**409**	352	12	45
Woodpulp	**29,544**	29,542	...	2
Wood Shanks	**164**	164	...	...
Wool	**289**	280	...	9
Wool, Greasy	**102**	102	...	...
Yeast	**102**	...	102	...

COMMODITY	Total Tons	Carried Before Export: Rail	Vessel	Other
Zinc Ashes	**34**	...	...	34
" Dross	**201**	5	20	176
" Skimmings	**133**	...	...	133
Totals	**6,838,108**	862,278	5,655,425	320,405

DOMESTIC

	Total Tons	RAIL In	RAIL Out	VESSEL In	VESSEL Out	Other
Acids	**607**	603	...	4	...	...
Aeroplanes	**78**	25	53	...	...	...
Alcohol, Industrial	**1,305**	126	1,175	...	4	...
Angles, Steel	**463**	461	...	...	2	...
Automobiles and Parts	**92**	79	...	2	11	...
Bagging	**572**	113	450	5	4	...
Baking Powder	**213**	210	...	...	3	...
Barrels, Empty	**65**	53	9	1	2	...
Basketware	**153**	153	...	...	...	...
Baths	**290**	290	...	...	...	...
Beams, Steel	**1,300**	1,272	27	...	1	...
Beans, Sacks	**123**	110	...	...	13	...
Beers	**270**	15	...	...	255	...
Bicarbonate of Soda	**122**	2	119	...	1	...
Bicycles and Parts	**109**	109	...	...	...	...
Binder Twine	**150**	150	...	...	...	...
Boats	**47**	26	21	...	...	...
Boilers and Parts	**460**	117	343	...	...	...
Bolts and Nuts	**257**	66	136	1	54	...
Boots and Shoes	**8**	...	8	...	...	...
Bottles, Empty	**80**	...	15	65	...	...
Boxes, Empty	**335**	296	39	...	...	...
Bran	**9**	...	...	...	9	...
Brassware	**7**	...	...	7	...	...
Brick, Fire	**736**	468	214	...	54	...
" Terra Cotta	**1,190**	1,190	...	...	...	...
Butter	**144**	127	15	...	2	...
Camphor	**7**	...	...	7	...	...
Canned Goods, N.O.S.	**127**	35	...	92	...	...

	Total Tons	RAIL In	RAIL Out	VESSEL In	VESSEL Out	Other
Carbide	23	16	...	...	7	...
Carpets	4	...	...	4	...	...
Casein	25	...	...	25	...	...
Cash Registers	4	...	...	4	...	...
Castings	219	193	25	1	...	...
Cement	20,478	7,790	9,102	...	3,071	515
" Slabs	160	...	...	...	...	160
Cereals	187	156	29	...	2	...
Chains	34	7	...	27	...	...
Channels, Steel	590	569	17	...	4	...
Charcoal	461	400	61	...	...	...
Cheese	2,586	20	2,355	210	1	...
Chemicals	35	27	...	...	8	...
Chinaware	27	...	...	26	1	...
Cinders	60	60	...	...	...	...
Clay, Fire	135	135	...	...	...	...
Cleansers	406	405	...	...	1	...
Coal, Anthracite	9,664	9,530	124	...	10	...
" Bituminous	1,659,904	2,845	6	1,657,038	15	...
Coffee	3	...	...	2	1	...
Coke	469	469	...	...	...	...
Confectionery	6	...	...	5	1	...
Cotton, Raw	899	899	...	...	...	...
" Waste	3	...	...	...	3	...
Cream Separators	227	227	...	...	...	...
Crockery	309	56	...	212	41	...
Disinfectants	33	...	...	33	...	...
Doors	73	58	...	...	15	...
Drain Pipes	33	...	...	...	33	...
Drugs	3	...	...	1	2	...
Drums, Steel	352	328	11	13	...	...
Dry Goods	20	...	...	6	14	...
Dump Cars	16	...	16	...	...	...
Earthenware	137	48	...	81	8	...
Eggs	1,586	1,571	5	8	2	...
Enamelware	303	301	...	1	1	...
Fertilizers	10	10	...	...	...	...
Fire Arms	2	...	...	2	...	...
Fish, Cured	1	...	...	...	1	...
Fish, Fresh or Frozen	17	17	...	...	...	...
Fish, in Tins	3,435	53	...	3,365	17	...
Flax	1,338	1,338	...	...	...	...
Flaxseed	2,844	2,844	...	...	...	...

	Total	RAIL		VESSEL		
	Tons	In	Out	In	Out	Other
Flour	**358**	196	77	...	85	...
Fruit, Dried	**429**	397	26	...	6	...
" Green	**4,987**	4,561	408	...	18	...
" in Tins	**3,395**	121	...	2,930	344	...
Furniture	**228**	97	123	4	4	...
Galvanized Sheets	**3,204**	781	2,419	...	4	...
Gasoline	**236,802**	...	52,051	75,969	108,782	...
Gear	**552**	301	251	...	...	...
Gelatine	**4**	...	...	...	4	...
Ginger	**3**	...	...	3	...	...
Glass, Sheet	**30**	5	18	...	7	...
Glassware	**125**	117	...	3	5	...
Glue	**69**	69	...	...	...	...
Grain for Local Delivery	**228,908**	...	...	...	...	228,908
Grain in Bags	**658**	247	138	...	273	...
Groceries	**201**	156	13	7	25	...
Gypsum	**53,997**	...	...	53,997	...	...
Hardware	**154**	67	56	3	28	...
Hay	**39,118**	22,917	23	10,937	949	4,292
Hides	**15**	15	...	...	...	...
Holloware	**173**	173	...	...	...	...
Honey	**64**	64	...	...	...	...
Hops	**9**	...	...	9	...	...
Ice	**30**	30	...	...	...	...
Inks	**17**	...	17	...	...	...
Iron and Steel Bars	**11,445**	857	9,945	402	26	215
Iron, Pig	**291**	...	72	219	...	...
" Pipe	**690**	594	75	4	17	...
" Sheet	**338**	127	205	...	6	...
Lard	**1,221**	1,211	...	1	9	...
Laths	**3**	...	3	...	...	...
Lead	**8**	...	...	5	3	...
Lime	**457**	455	2	...	...	...
Liquors	**11**	11	...	...	...	...
Lye	**88**	88	...	...	...	...
Machinery	**5,596**	3,072	933	24	1,567	...
Malt	**1**	...	...	...	1	...
Meat, Cured	**51**	17	...	...	34	...
" Fresh or Frozen	**303**	285	15	...	3	...
" in Tins	**16**	14	...	...	2	...
Middlings	**7**	...	...	...	7	...

	Total	RAIL		VESSEL		
	Tons	In	Out	In	Out	Other
Milk in Tins	**396**	393	...	...	3	...
Mineral Waters	**25**	...	25	...	...	...
Molasses	**4,212**	331	3,875	...	6	...
Mouldings	**20**	20	...	...	...	...
Musical Instruments	**3**	...	...	3	...	...
Nails	**147**	...	71	1	75	...
Nuts, Edible	**28**	13	...	15	...	...
Oilcake	**1,946**	...	1,911	35	...	...
Oil, Crude	**250,868**	915	767	97,670	151,516	...
" Essential	**1**	...	...	1	...	...
" Linseed	**328**	21	243	...	64	...
" Lubricating	**600**	320	278	...	2	...
" Refined	**57,816**	94	379	55,360	1,983	...
" Seal	**46**	...	...	46	...	...
Oyster Shells	**188**	188	...	...	...	...
Paints	**291**	193	74	4	20	...
Palm Leaves	**32**	32	...	...	...	...
Paper, Building	**50**	50	...	...	...	...
" Mfrs. of	**28**	...	...	28	...	...
" Roofing	**49**	42	...	7	...	...
" Stock	**3,292**	101	3,191	...	...	...
" Toilet	**96**	...	...	96	...	...
" Wrapping	**60**	6	...	37	17	...
Paving Blocks	**398**	398	...	...	...	...
Peas	**95**	...	...	95	...	...
Pepper	**13**	...	...	12	1	...
Phosphates	**75**	75	...	...	...	...
Pickles	**53**	30	...	...	23	...
Pitch	**2**	...	...	...	2	...
Plaster	**555**	527	8	...	20	...
Porcelain	**15**	...	...	15	...	...
Poultry	**421**	421	...	...	...	...
Preserves	**176**	150	16	9	1	...
Rags	**2,530**	384	2,146	...	...	...
Rattan	**11**	...	...	11	...	...
Reels, Cable	**2**	...	...	2	...	...
Refining Earth	**160**	160	...	...	...	...
Refrigerators	**213**	213	...	...	...	...
Rice	**834**	...	...	719	115	...
Rivets	**97**	97	...	...	...	...
Rope	**280**	244	15	18	3	...
Rubber, Mfrs. of	**78**	44	33	...	1	...
Salt, Coarse	**104**	86	18	...	...	...

	Total	RAIL		VESSEL		
	Tons	In	Out	In	Out	Other
Salt, Fine	**1,516**	1,516	...	...	...	...
Sand	**38,058**	1,124	47	29,645	5	7,237
Sauces	**77**	77	...	...	...	...
Scale, Mill	**15**	...	15	...	...	...
Scrap, Brass	**311**	170	141	...	...	...
" Copper	**16**	...	16	...	...	...
" Iron and Steel	**9,154**	3,077	4,877	...	1,200	...
" Lead	**43**	43	...	...	...	...
" Leather	**30**	...	30	...	...	...
" Rails	**2,105**	2,105	...	...	...	...
" Rope	**129**	64	65	...	...	...
Screen Doors	**32**	32	...	...	...	...
Sea Grass	**21**	...	...	21	...	...
Seeds	**28**	...	...	27	1	...
Sheep Skins	**7**	...	...	7	...	...
Ship Stores	**437**	...	399	...	38	...
Shooks	**760**	760	...	...	...	...
Silverware	**26**	21	...	5	...	...
Slag	**187**	...	187	...	...	...
Soap, Common	**51**	49	...	...	2	...
" Toilet	**58**	56	...	2	...	...
Soda, Ash	**61**	61	...	...	...	...
" Caustic	**36**	36	...	...	...	...
" Sal	**217**	216	...	...	1	...
Spices	**58**	...	...	58	...	...
Spikes	**62**	...	28	16	18	...
Spoolwood	**1,313**	1,313	...	...	...	...
Starch	**68**	68	...	...	...	...
Stationery	**13**	12	...	...	1	...
Steel Billets and Blooms	**26,775**	18,547	...	8,228	...	...
Steel Plates	**2,959**	2,508	450	...	1	...
Steel Rails	**2,970**	2,376	...	555	39	...
" Rods	**6,771**	1,045	5,448	212	...	66
" Structural	**13,884**	5,087	7,169	...	10	1,618
" Tanks	**272**	...	272	...	...	...
Stone, Crushed	**26,739**	1,511	...	211	2,608	22,409
Stoneware	**90**	90	...	...	...	...
Stoves	**431**	431	...	...	...	...
Sugar, Maple	**15**	...	15	...	...	...
" Raw	**113**	113	...	...	...	...
" Refined	**71,400**	1,404	21,906	13,501	29,467	5,122
Sulphate	**15**	...	...	15	...	...

	Total	RAIL		VESSEL		
	Tons	In	Out	In	Out	Other
Sulphur	**12**	...	...	11	1	...
Sundries	**282**	148	...	27	107	...
Switches and Frogs	**37**	...	...	...	...	37
Syrup, Maple	**79**	19	60	...	...	...
Tapioca	**52**	...	...	51	1	...
Tea	**2,430**	24	73	2,330	3	...
Tin Plate	**974**	...	30	944	...	...
Tinware	**401**	216	183	1	1	...
Tobacco	**1**	...	...	1	...	...
Toilet Articles	**15**	15	...	...	...	...
Tools	**2**	...	...	...	2	...
Toys	**4**	...	...	4	...	...
Trucks	**4**	4	...	...	...	...
Valves	**8**	...	...	...	8	...
Vegetables, Dried	**2**	...	...	1	1	...
" in Tins	**763**	550	...	210	3	...
" Raw	**13,802**	12,901	754	137	10	...
Vinegar	**4**	...	...	4	...	...
Wallboard	**435**	431	...	...	4	...
Wheels	**17**	9	8	...	...	...
Wheelbarrows	**25**	25	...	...	...	...
Whiting	**22**	...	22	...	...	...
Window Frames	**5**	...	...	...	2	3
" Shades	**8**	...	...	...	8	...
Wines	**20**	18	...	2	...	...
Wire, N.O.S.	**202**	136	15	31	16	4
" Rope	**16**	15	...	...	1	...
Woodenware	**55**	46	...	9	...	...
Woodpulp	**700**	...	...	700	...	...
Wood Waste	**12**	12	...	...	...	...
Yarn	**8**	8	...	...	...	...
Yeast	**51**	51	...	...	...	...
Zinc	**1,056**	1,056	...	...	...	...
Grand Total	**2,865,957**	138,657	136,505	2,016,908	303,301	270,586

MISCELLANEOUS

		RAIL		VESSEL		
	Total	In	Out	In	Out	Other
Bricks (Number)..	2,880,110	2,734,410	18,000	45,000	82,700	...
Firewood (Cords)....	1,700	735	...	965	...	...
Grain Doors (Cars).....	97	25	72	...	...	...
Lumber, Dressed (Feet).....	1,741,134	978,024	...	750,687	5,105	7,318
Lumber, Rough (Ft.)	69,933,510	31,393,422	175,700	34,854,976	124,362	3,385,050
Ogilvie F.M. (Cars).....	4,288	1,806	2,482	...	...	...
St. John Frt. (Cars).....	825	825	...	...	...	...
Ties, railway (Number)..	13,018	13,018	...	...	...	..

Estimated Tonnage of above

Commodity	Tons
Brick	7,200
Firewood	1,700
Grain Doors	1,164
Lumber, Dressed	3,265
Lumber, Rough	131,126
Ogilvie Cars	171,520
St. John Freight	24,750
Ties	651
Total Miscellaneous	341,376
Domestic Total	2,865,957
Grand Total, Tons	3,207,333

TONNAGE SUMMARY

	Rail	Vessel	Other	Total
Domestic	275,162	2,320,209	270,586	2,865,957
do Brick, etc	266,724	68,288	6,364	341,376
Domestic Total	541,886	2,388,497	276,950	3,207,333

Distribution after Import

	Rail	Vessel	Other	Total
Import	207,541	219,886	2,116,258	2,543,685

Carried before Export

	Rail	Vessel	Other	Total
Export	862,278	5,655,425	320,405	6,838,108

Distribution of Tonnage

	Rail	Vessel	Other
Domestic	541,886	2,388,497	276,950
Import	207,541	219,886	2,116,258
Export	862,278	5,655,425	320,405
	1,611,705	8,263,808	2,713,613

Total Tonnage all Sources

Import	2,543,685
Export	6,838,108
Domestic	3,207,333
Grand Total	12,589,126

STATEMENT OF COAL IMPORTS

Foreign Coal and Coke Imported Ex Vessel

British Anthracite	359,253 tons
Russian Anthracite	5,904 "
German Anthracite	1,103 "
South African Anthracite	328 "
Total Anthracite	366,588 tons
American Bituminous	65,039 tons
British Bituminous	61,471 "
Total Bituminous	126,510 tons
American Coke	16,862 tons
British Coke	1,330 "
German Coke	566 "
Total Coke	18,758 tons

Anthracite	366,588 tons
Bituminous	126,510 "
Coke	18,758 "
Total Ex Vessel	511,856 tons

Other Coal Imports

Canadian Bituminous (ex Vessel from Nova Scotia)	1,659,206 tons
American Anthracite (ex rail)	9,664 "
Grand Total Coal Imports	2,161,968 tons
Grand Total Coke Imports	18,758 "

THE HARBOUR COMMISSIONERS' COLD STORAGE WAREHOUSE

FRESH WATER SERVICE

The Commissioners' service of fresh water to vessels was extensively availed of during 1928. The following statement gives the number of services rendered by this Department, and the volume of water supplied to vessels, for the past ten seasons of navigation:—

	No. of Services	Volume of Water Cu. Ft.
1919	382	1,423,000
1920	507	2,179,550
1921	520	1,885,900
1922	617	2,900,000
1923	567	2,300,000
1924	731	2,684,100
1925	803	3,379,900
1926	682	2,579,200
1927	838	3,004,000
1928	1,020	5,260,000

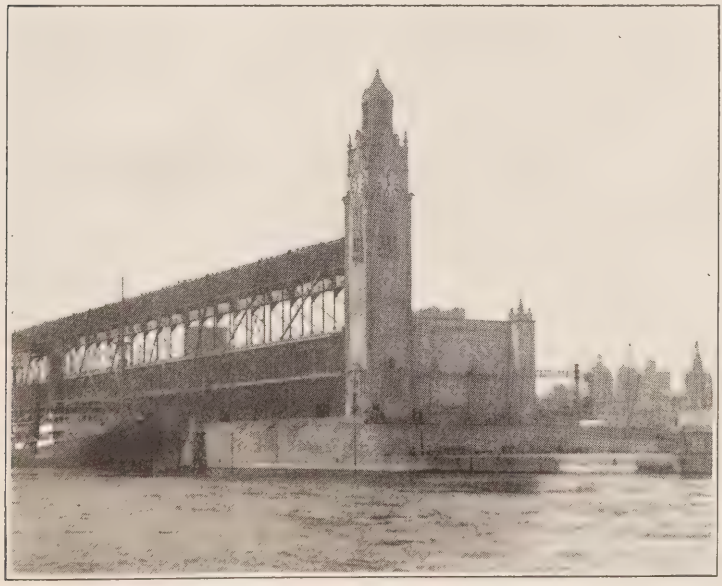
COLD STORAGE WAREHOUSE

The Harbour Commissioners' Warehouse and Cold Storage plant functioned throughout the year to the satisfaction of merchants and others who utilized this facility for the storage of their commodities. The exceptionally favourable location of this warehouse, and the ease of access to the loading platforms for both rail and road vehicles, are appreciated by the various trades which require cold and dry storage for their commodities. No steps have been spared by the Commissioners in the equipping of this fine plant with every known improvement in the science of refrigeration and storage, and the many visitors to the plant during each season of navigation are impressed by the smoothness of operation, the compactness of the structural design, and the splendid condition in which the warehouse is maintained.

No exceptional features of operation were experienced during the year. The seasonal activities in various com-

modities were taken care of adequately. Export shipments of carload lots of meats and packing house products again demonstrated the importance to the Ports' equipment of this terminal Warehouse situated on the Harbour front, within easy distance of the central berths and piers. The foreign market demand for Canadian cheese was unusually brisk in 1928, storage stocks of this commodity passing in a steady stream through the warehouse, and this was reflected in an increase in exports of cheese from the Harbour.

The trend towards centralization of buying in the retail produce trade, evidenced by the ever-growing number of "chain grocery stores," is of importance to warehousemen. Stocks of perishable foodstuffs are now warehoused in proportionately larger unit quantities, and are released to the individual stores as the demand warrants. This has conferred benefits not only on the trade, but on the consumer, whose



Sailors' Memorial Tower

merchandise is assured of the care and good quality which competent warehousing gives.

During the year 1928, the total tonnage of merchandise handled in and out of the Commissioners' Warehouse amounted to 32,688 tons. The average quantity of goods in store during the year was about 6,000 tons.

HARBOUR POLICE DEPARTMENT

The Harbour Commissioners' police force performed its important duties with customary efficiency and satisfaction during the year 1928. No small part of the credit for the good order, safety of property and absence of pilfering or rowdiness within the precincts of the Harbour is due to this force, which maintains day and night patrol from Windmill Point, in the extreme Western section of the Port, to the Imperial Oil wharf at Section 100.

During the season of navigation the force consisted of a Chief, three Captains and sixty-three constables. In the winter season the number of constables was reduced to twenty-seven.

During the year 119 arrests were made for various offences in the Harbour, including eight infractions of Customs laws. This number also included 25 arrests for dangerous speeding by drivers of motor vehicles on the wharves.

An unusually large number of deaths occurred during 1928 on the Harbour front, the total of 38 including:—

9 accidental deaths
17 drownings
9 suicides
3 sudden deaths

Ninety-two accident cases were rendered first aid by the police department during the year.

The motor car and two motor cycles attached to the police department were in constant use during the year, and covered a total of 39,635 miles.

Carters to the number of 8,551, loading and delivering merchandise at various points along the waterfront, were checked by the traffic constables.

Police supervision was maintained during the arrival and departure of passenger vessels, all taxicabs and other vehicles being lined up, and the number of each vehicle leaving the wharf with passengers or baggage being noted. During the season numerous lost articles were returned to owners through this system.

ENGINEERING DEPARTMENT

The main items of Construction and Repair Work, which were comparatively heavy during the past season, are as follows:—

Wharves

Continuation of Shore Wharves at Section 32-33.

Continuation of Bickerdike Pier Extension.

Completion of Industrial Wharf and Mole at Section 100.

Extension of existing Industrial Wharf at Sections 97-98.

New Shore Wharf at Sections 56, 57 and 58.

Reconstruction of small section of wharf superstructure on Jacques Cartier Pier.

Reconstruction of Upstream Side of King Edward Pier.

Buildings

Completion of Elevator No. 3 Annex Building.

Construction of Rest and Office Rooms Building at Section 41.

Extension to Shed No. 6, Alexandra Pier.

Extension to Shed No. 10, King Edward Pier.

Extension to Shed No. 15, Jacques Cartier Pier.

Sewers, Drains and Intake Pipes

Extension of Sewer Outlet at Section 33.

Installation of Drain Pipes in new wharves.

Laying of Intake Pipe at Section 56.

Dredging

Continuation of Dredging Operations in Bickerdike Basin and its Entrance Channel.

Continuation of Dredging of Channel at Sections 58-60.

Dredging in connection with New Wharves:

At Bickerdike Pier.

At Sections 32-33.

At Sections 56, 57 and 58.

At Section 97.

At Section 100.

Drilling operations.

Testing and Sweeping.

Maintenance Dredging.

Electrical Branch

Additional Power Equipment for Elevator No. 3 Annex.

Transmission and Service Line Extensions.

Telephone System, at Guard Pier, and Conduits for Bell Telephone Co.

Construction of Trolley Brackets.

Maintenance and Repair work.

Paving

Berri Street Ramp.

Railway Construction

Tracks alongside Shed No. 6.

Tracks alongside Shed No. 10.

Tracks alongside Shed No. 15.

Tracks at Canada Cement Wharf.

Temporary track laid and lifted at Canada Cement Wharf.

Track for Dominion Distilleries.

Maintenance

Wharves, roads, sheds, elevators and other Maintenance work.

NEW WHARVES

Continuation of High Level Shore Wharves, Sections 32-33

Six reinforced concrete cribs were sunk at Sections 32-33 during the working season, by contract with the firm of Robertson & Janin, Ltd.

One crib 107′ x 42′ in 36.34 ft of water, forming the return. of the third 500 ft. saw-tooth wharf partly done the year previous.

One crib 112′ 1″ x 42′ in 36.53 ft. of water, being the first upstream crib section of the fourth 500 ft. saw-tooth wharf.

One crib 112′ 4″ x 42′ in 36.96 ft. of water, being the second crib section.

One crib 107′ 1″ x 42′ in 36.59 ft. of water, being the third crib section.

One crib 112′ 3″ x 42′ in 39.81 ft. of water, being the fourth crib section.

One crib 107′ 1″ x 42′ in 38.94 ft. of water, being the fifth and return crib section.

The five cribs, with the 2′ 10″ concrete fill, forms a whole new 500 ft. saw-tooth wharf.

Due to heavy scour caused by the swift current and comparatively deep depression encountered in the location, special precautions had to be resorted to in the preparation of the crib seats. The 2″ crushed stone generally placed over the dredged seat to form a mattress for the crib was found to be carried away by the force of the current, so that in the exposed spots the stone had to be bagged.

It was also found, as the dredging work progressed in a downstream direction, that the grade of the river bed was falling away so rapidly that a difference of from 3 to 4 ft. in depth was found in the length of a crib. This difficulty was overcome by building walls of concrete bags, where warranted, which permitted the independent levelling of each crib which is sunk at different levels.

In order to avoid the possibility of the foundation of the cribs being undermined through scouring, a protecting mat-

tress of bagged concrete was laid for a certain width alongside the exposed side of the cribs.

All the cribs sunk were filled and, at the end of the season, appeared to be in good line and satisfactory condition in general.

It is the Commissioners' intention to raise these cribs to finished cope elevation during the 1929 season.

Continuation of Bickerdike Pier Extension

Three reinforced concrete cribs were sunk in the upstream or inner part of the Bickerdike Basin new wharf under construction at the downstream end of the Bickerdike Pier.

The three cribs, built under contract by the Atlas Construction Co., are 112′ 6″ long and 41 ft. wide at the base, and were all sunk on a prepared stone mattress about 31 ft. below low water elevation.

These new cribs and also the other cribs sunk during the two previous years, were raised to cope Elevation 119, with cope wall, bollards, rings and ladders provided.

The small 80 ft. gap at the end of the Pier, closed under water last year with a wooden crib, was this year brought up to cope elevation by means of the old standard section of mass concrete gravity wall, well anchored into the back fill.

The whole of the cribs were filled with rock and a considerable back fill behind the cribs was also carried out.

The reclamation work behind the cribs is well under way and it is expected that 500 ft. of new wharf at the end of the Pier and 1,060 ft. on the Bickerdike Basin side will be available for shipping purposes very early in the coming season.

Completion of Industrial Wharf, Section 100

The industrial wharf started towards the end of last season at Section 100, at the request of the Frontenac Oil Refineries, which could not be completed then due to an abnormally early rise of the water, was completed in the earlier part of the season. The reinforced concrete crib previously sunk in place was raised to the cope level, Elevation 108.33, with the necessary bollards and the mole, connecting the crib with

the land, brought up to the required elevation by means of material obtained near the site and rock from the Bickerdike Basin dredging operations.

The completed wharf is 112′ 6″ long and 40′ wide, and can receive boats drawing 30 ft. of water. The mole is approximately 520 ft. long and 20 ft. wide at the top. It has been in satisfactory use during the balance of the season.

Extension of Industrial Wharf, Sections 97-98

At the request of the Canada Cement Co., the Commissioners have lengthened the present wharf at Sections 97-98 by about 228′ 0″ in a downstream direction.

Two reinforced concrete cribs, 112′ 6″ x 41′ at the base, were built in the upper part of the Harbour by the Atlas Construction Co., and floated down to the site where they were sunk on a prepared seat 30 ft. below low water level. They were then raised to the same height as the existing structure, 113 H.D., where a concrete cope with the necessary bollards was provided.

The cribs and area behind them were filled by means of dredged material obtained from around Section 60.

The work was started in the second half of the month of May, and was completed towards the end of October.

Over 150,000 c.yds. of filling material was handled for the purpose of reclaiming the gap between the cope of the wharf and the shore line, and the superficial area of land thus reclaimed amounts to approximately 100,000 sq. ft.

New Shore Wharf at Sections 56, 57 and 58

1,000 lin. ft. of shore wharf construction at Sections 56, 57 and 58, in line with the north wall of the Dry Dock Basin, in a downstream direction, was commenced in the second half of the month of August.

Nine reinforced concrete cribs, 7 of 112 ft. length and 2 of 107 ft., were built in the upper part of the Harbour, floated down to the site and sunk to a depth of 35 ft. below low water elevation, on a properly prepared seat.

Owing to the large amount of material which had to be removed for the preparation of the crib seats, two dredges

were put in operation on this undertaking, and as soon as feasible, a stone mattress was spread over the area and properly levelled off.

The nine cribs sunk emerged above low water elevation, some having been raised to Elevation 110, some to 100.

A comparatively large amount of fill has been deposited behind the cribs, which have been filled to present finished height.

The whole of the 1,000 ft. of new extension and the first stage of a proposed extension of 3,000 ft., will probably be ready for operation during the coming season of navigation.

Reconstruction of Wharf Superstructure of Jacques Cartier Pier

Due to the erection of an addition to the existing Shed 15 on Jacques Cartier Pier, a small 50 ft. portion of the wooden wharf superstructure in the outer end of the old Pier, downstream side, had to be renovated. The Commissioners having in mind the future difficulty of eventually remodelling the fast rotting wharf structure, with a shed not founded on supporting piles, decided to have the portion of the wharf above water and in the immediate vicinity of the new shed, renewed prior to the erection of the shed.

Consequently the wooden members of the wharf were removed, together with the fill, and a reinforced concrete wall with integral wing walls and floor slab was provided. This type of construction, which has the appearance of mass concrete from the river, was chosen so as to reduce to a minimum the toe pressure on the face of the cribwork, which, under water, is still in a very satisfactory condition, due to the fact that it had been, some years ago, considerably reinforced with sheet piling.

The reconstruction of this small portion of the pier was completed in ample time to permit the erection of the shed alongside it.

Reconstruction of Upstream Side of King Edward Pier

The three main piers of the upper part of the Harbour, Alexandra, King Edward and Jacques Cartier, were built

wholly of timber. For many years, it has been a question of renewing these structures, which are showing signs of ageing considerably, but, due to the scarcity of berthing accommodation in the Harbour and the demand for such facilities, it was found undesirable to deprive the shipping people of even a single berth during the navigation period.

Winter work, notwithstanding its higher cost and objectionable features, was finally resorted to.

Plans and estimates having been prepared for the Reconstruction of the Upstream Side of King Edward Pier, tenders were called towards the end of the season and the contract awarded to the lowest bidder, the Foundation Co. of Canada, Ltd.

The reconstruction embodies the sinking of a series of 7 ft. diameter open steel caissons to rock bottom along the existing wharf face, which after having beached the rock and been emptied of all loose material, are filled with a compact concrete, convenient reinforcing steel bars having been previously installed. The cylinders are secured at the bottom by means of heavy steel dowels driven about 5 ft. into the rock. At the top they are anchored back into the pier structure by heavy rods and concrete "dead men."

A reinforced concrete cope wall, 6 ft. deep and 8 ft. wide, caps the cylinders to which it is strongly tied.

The finished cope wall elevation is only a few inches lower than the lower deck of the shed, thus doing away with the necessity of erecting flying platforms, as was done previously outside of the shed. The gap between the cope and the sheds is covered by a substantial and strong reinforced concrete floor and broken stones were deposited between the face of the old wooden cribs and the cylinders.

Due to the lateness of the season, when work was put in hand, only a very small percentage of the work was carried out during 1928. It is expected, however, that it will be completed for the opening of next season.

RECAPITULATION OF WHARF CONSTRUCTION

Concrete Cribs Sunk to Low Water Level:

	No.	Length on Cope Line. Lin. ft.	Total Lin. ft.
Bickerdike Basin	3	342	
Section 33	6	691	
Section 58	6	678.83	
Section 97	2	226.5	
			1,937.33

Concrete Cribs in Progress above Low Water Level:

Section 58	3	339.75	
			339.75

Concrete Cribs Completed to Cope Elevation 109.00:

Section 100	1	112.5	
			112.5

Concrete Cribs Completed to Cope Elevation 113:

Section 97	2	226.5	
			226.5

Concrete Cribs Completed to Cope Elevation 119:

Bickerdike Basin	8	912	
			912

Quay Wall Completed to Cope Elevation 119:

Bickerdike Basin	79.25

The extent of the Wharves and Piers at the end of the season of 1928 is as follows:—

30 ft. depth and over at O.L.W.	34,798	lin. ft. or	6.5905	miles.
25 to 30 ft. depth	14,984	do	2.8379	do
Total Deep Draught	49,782	do	9.4284	do
20 ft. depth and under	1,824	do	0.3454	do
Total Wharfage end of 1928	51,606	do	9.7738	do
Total Wharfage end of 1927	48,848	do	9.2514	do
Increase in 1928	2,758	do	0.5224	do

BUILDINGS

Extension to Grain Elevator No. 3

The three million bushel extension to the existing Grain Elevator No. 3 at Section 44, started during the season of 1927 and partly described in the Annual Report of that year, was completed during this season and was put into operation towards the close of the year.

The Working House bins had been carried to their full height during last season and the foundation and basement storey under the Storage Bins had also been constructed ready to receive the bins. The Storage House bins and top storey were completed last summer.

The steelwork of the cupola and that of the various cross galleries connecting the Annex to Elevator No. 3 was completed in the fall, the installation of the machinery following closely upon the steel structure of each section as it was erected.

Although separated from the original Elevator No. 3 by a distance of 163 ft. by the intervening railway tracks, the Annex is connected by a 4-belt gallery delivering from the Receiving House of Elevator No. 3, a 2-belt gallery delivering from the Annex to the East Shipping House and a 4-belt gallery delivering also from the Annex to the Shipping Gallery system at the water edge.

The 4-belt gallery from the Receiving House can receive grain from the Marine Tower, the Car Dumpers or any bin in Elevator No. 3 and deliver to any bin in the Annex. The 2-belt gallery from the Annex can deliver via the East Shipping House to any bin in Elevator No. 3 or to the Shipping Gallery on Tarte Pier and the adjacent shore wharf gallery. The 4-belt gallery from the Annex can deliver to the gallery on the downstream side of Tarte Pier or to the adjacent shore gallery. All grain delivered from the Annex can be weighed in the new Working House Cupola.

The whole installation embodies the latest practice in Grain Elevator construction for minimizing the direct explosion hazard, such as vented elevator legs, separate vents to each bin and large windows fitted with the Canavan Explosion Venting System.

The New 3,000,000 bushel Extension to Grain Elevator No. 3

The machinery is equipped with roller bearings throughout.

Such an utilitarian structure is not in itself deprived of architectural interest and, as a whole, combined with the older unit, forms quite an imposing group.

The work was designed by and carried out under the supervision of the John S. Metcalf Co. Ltd., Grain Elevator Engineers of Montreal.

Rest Rooms and Office Building at Section 41

The men engaged in the operation of the Railway Terminal Department, engineers, firemen and brakemen, had to put up with quite obsolete and insanitary quarters for dressing and storing their clothes, as well as for resting and refreshment purposes; as had the time-keepers and other clerical help engaged in this activity.

Following the men's request for improved accommodation, the Commissioners decided to have a permanent fireproof structure erected with provision for a dressing room, a room where clothes could be dried, a dining and resting room, office and toilet room.

The building is of 12″ terra cotta blocks covered both interiorly and exteriorly with a cement plaster, the whole supported on a concrete foundation wall 16″ thick. The roof is of reinforced concrete with tar and gravel roofing and metal lath and plaster suspended ceiling.

The windows, which are of substantial dimensions, are of the solid steel pivoted type, glazed with double diamond sheet glass, while the doors are of the Kalameined style.

The floors are of concrete, cement finish.

The heating system is of steam obtained from the adjacent Yard Shop's boiler house.

Substantial sanitary fixtures were provided.

The size of the building is 42 ft. by 25 ft.

Extension to Shed No. 6

The size of the ships now calling regularly at the Port of Montreal, especially the liners berthing in the upper part of the Harbour, has increased to such an extent that the sheds

serving these larger units are quite disproportionate to the services to be rendered. The Commissioners, following the pressing request made by the shipping interests, have consented to have some of the more inadequate sheds lengthened to meet the new conditions.

Shed No. 6, on Alexandra Pier, was therefore extended during the earlier part of the season.

Due to the urgency of the demand, and also because a double deck shed in that special location was not deemed immediately necessary, a single decked structure was decided upon. It was designed, however, with a view to incorporating it in an eventual double decker, when the need of such a structure has become warranted.

The structure of the new shed is of steel, sheathed with corrugated galvanized iron, solid metal sashes glazed with wire glass, all steel double leaf turnover doors, all in accordance

Freight Hoist Descending from Upper Floor of Shed

with the past practice in shed construction. The roof, instead of being a solid slab, consists of precast slabs of such a nature that they will be readily removed and re-erected in the final structure. The flooring and column supports are of timber.

The work was carried out departmentally, except for the steel structure and doors, which were supplied and installed by contract.

The new shed has a length of 176 ft. and is approximately 91 ft. wide.

Extension to Shed No. 10

For the same reasons as previously enumerated, a single deck extension 240 ft. in length and 91 ft. in width was added to Shed No. 10 on King Edward Pier.

It is an exact duplicate of Shed No. 6 Extension, except for its length.

Extension to Shed No. 15

Shed No. 15, on the outer end of Jacques Cartier Pier, was also found to be deficient in length.

Contrary to the case of Sheds Nos. 6 and 10, due to different circumstances, it was deemed advisable to provide at once a double deck shed with a conveyor gallery over it.

Having rented the shed in the early spring with a promise to the lessees that it would be extended to meet their requirements, the construction work was put in hand at the earliest opportunity. Different causes prevented the completion of the structure during the season, one being the presence on the pier head of a temporary shed which could not be dispensed with at the time. It is expected, however, that the structure will be in operation in the earlier part of the coming navigation season.

When completed, the extension will be 225 ft. long and approximately 91 ft. wide, same as the present Shed 15.

As mentioned above, it will be of the standard two deck type, with a double belt conveyor gallery. The foundation will be of the spread reinforced concrete style. All the floor and roof slabs will be of reinforced concrete, with an asphalt

wearing surface on the shed floors, cement surface in the conveyor gallery and tar and gravel roofing in all cases.

The framing will be of structural steel, and the sheathing of corrugated galvanized iron, solid steel sashes glazed with wire glass, and two sections all metal turnover doors of the standard used in the Harbour.

Latrines for the men will be provided at the outer end of the shed, of entirely fireproof construction, fitted with convenient modern, sanitary installation.

The shed, although designed along the lines of the existing ones, has been improved in its detail to a considerable extent.

SEWERS, DRAINS AND INTAKE PIPES

Extension of Sewer Outlet at Section 33

The construction of the new saw-tooth wharf opposite Poupart Street Subway necessitated the extension of the existing 2′ x 3′ brick sewer from the face of the old wharf to and through the face of the new concrete cribs.

The City of Montreal, wishing to make use of the Poupart Street outlet for future expansion purposes, decided to build a new outlet of greater capacity, viz.—a 6′ 0″ diameter steel pipe $\frac{5}{8}$″ thick, extending 200 ft. in a northerly direction from the face of the new wharf. A reinforced concrete chamber 41′ 0″ long, irregular in shape, connecting at one end with this 6′ 0″ steel pipe and enlarging to an 8′ 0″ diameter outlet, was constructed so as to permit of future extension on the City side, whenever required. The existing 2′ x 3′ brick sewer was diverted permanently into this new concrete chamber.

The complete fabrication of the steel pipes was made at the Harbour Shops and the placing of these and the construction of the special chamber was carried out by the Harbour forces, to the satisfaction of the Engineers representing the City of Montreal.

Installation of Drain Pipes in New Wharves

The new reinforced concrete crib type of wharf construction does not allow the installation of drain or sewer pipes in

its body. It has, therefore, been necessary to lay oval-shaped steel pipes between consecutive cribs wherever it is estimated such provision would be required.

These were manufactured and installed departmentally and in conjunction with the different contractors' work.

Intake Pipe at Section 56

The two existing 16″ intake pipes of the Canadian Steel Foundries were extended through the reclaimed area and the new cribs facing same at Section 56. The length of these steel pipes, supplied by the company, was approximately 250 feet each.

Sewer at Section No. 26

The 12″ sewer on the High Level Shore Wharf from the Cold Storage Power House to the eastern end of Shed No. 26 used to empty into a manhole on the western side of the Papineau Ave. Ramp. From there, its direction changed 90° and the sewer found its way through the wharf and into the river.

That portion under Shed No. 26 gave way and the sewerage could no longer get through this outlet. To obviate this, a new extension of the 12″ main was made from the head of the ramp in an easterly direction 196′ 6″ to connect the existing sewer with the next outlet, viz.—that of Papineau Ave.

DREDGING

Continuation of Dredging Operations in Bickerdike Basin and its Entrance Channel

The work of dredging the Bickerdike Basin was continued in conformity with the plan as laid down previously, and the Drill Boat and one Dredge were engaged on the work the whole of the season, and a second Dredge for part of it.

The body of the basin, for a length of approximately 1,200 ft., has been drilled and dredged to the full depth of 30 ft. After it has been tested, a small amount of cleaning up of isolated spots may, however, be yet necessary.

The Entrance Channel to the Basin has been partly dredged to a depth of 30 ft. This work is a comparatively

arduous task, due to the presence of rock of a very hard nature, and calls for an extensive use of powder and consequent prior drilling.

Continuation of Dredging of Channel at Sections 58-60

The dredging of the channel was continued and it has been cut for three full cuts in its entire length, 2 cuts north of the centre line and one south; also 2 half cuts, one on either side. The channel is now about 60% completed, as far as can be ascertained, to the full depth of 30 ft.

Activities in other locations of more importance did not permit the completion of this work this year. It is expected, however, that it will be completed towards the middle of the coming season.

Dredging in Connection with New Wharves

Three crib seats were dredged during the season in the Bickerdike Pier Basin. The cribs' stone mattress and their filling and back filling were also done by the Harbour Dredges and Derricks.

The same preparatory work, fill and back fill, was carried out at Sections 32-33 for the 6 cribs sunk during the season at that location.

Also at Sections 56, 57 and 58, where nine cribs were placed, and at Section 97, where two were sunk, filled and the area behind completely reclaimed.

The total number of cribs sunk, which entailed preparatory work and ulterior filling and back filling, amount to 20, representing a total length of about 2,250 lin. ft. of New Wharf laid down.

The crib filling and mole of the Industrial Wharf at Section 100 were completed during the early part of the season.

DRILLING AND BLASTING

An area approximately 10,250 sq. yds., from the end of Bickerdike Pier to 700 ft. westward, and for the full 700 ft.

present width of the basin, was drilled and blasted during the season.

The details of these operations are given in a table included in the Report.

The Drill Boat was also used for test borings made in connection with the Reconstruction of the upstream side of King Edward Pier.

TESTING AND SWEEPING

Little was done in the way of Testing and Sweeping during the season, due to the heavy construction program in progress, which did not permit of sparing any tug for this purpose.

However, the two or three complaints which were received, none of a serious nature, were attended to, and runs were made with the Testing Boat in the basins of the upper part of the Harbour, in the Main Channel and in Windmill Point Basin.

A fair amount of work awaits the Testing and Sweeping Boat, when time and opportunity permits.

MAINTENANCE DREDGING AND FILLING

The ordinary maintenance dredging undertaken during the season consisted of cleaning the berth at Section 6N, Windmill Point Basin, and the completion of the cleaning up of the shoal in front of Shed No. 2, left unfinished last season.

An extraordinary repair work was carried out by the derrick fleet on the railway embankment from Section 58 eastward to Section 100, which had been damaged by the movement of the spring ice. The bank was resurfaced with rock for nearly the entire length mentioned.

The Government Wharf at Longueuil had to be refaced with rock obtained from the Bickerdike Basin. Also a considerable length of the south-east end of the Dry Dock Basin.

Approximately 22,000 cu. yds. of rock was required for these repairs.

DRILLING AND BLASTING FOR SEASON OF 1928

Location—Inland Basin

Number of Holes	3,782
Drilling	22,327 lin. ft.
Dynamite	18,106 lbs.
Area covered	10,256 sq. yds.
Rock loosened	20,673 cu. yds.
Caps	4,755
Working Days	138½
Repairs	1½
Test Boring	1
Total	141 days

The following are the quantities of dredging and filling for the season:—

Dredging	Cu. Yds. (Scow)	Cu. Yds. (Scow)
Rock:—		
Inland Basin	166,550	
Entrance to Inland Basin	20,975	
		187,525
Other Material:—		
Inland Basin	20,000	
Entrance to Inland Basin	13,225	
Section 6, Maintenance	800	
Section 13, do	5,000	
Section 33, Crib Seats	6,800	
Sections 56-58, do	137,950	
Sections 58-61, New Channel	136,300	
Section 97, Canada Cement	27,150	
Sections 99-100, Frontenac Oil Wharf	2,050	
		349,275
Total Dredging		536,800

Filling:—		
Rock (By Derrick):		
Bickerdike Pier	68,775	
Sections 33-34	39,375	
Sections 57-58	25,325	
Railway Embankment	18,650	
Canadian Vickers, Ltd	2,450	
Longueuil Wharf	750	
Canada Cement Wharf	13,950	
Frontenac Oil Wharf	18,250	
		187,525
Other Material (By Derrick):—		
Bickerdike Pier	26,825	
Sections 33-44	25,550	
Sections 57-58	150,225	
Railway Embankment	1,600	
Canada Cement Wharf	137,625	
Frontenac Oil Wharf	7,450	
		349,275
Total Dredged Material to Fill		536,800
Sundry Items of Filling:		
Material Clammed (By Derrick):—		
Bickerdike Pier	800	
Sections 33-34	500	
Sections 57-58	150	
Canada Cement Wharf	800	
Frontenac Oil Wharf	500	
		2,750
Ballast (By Derrick):—		
Bickerdike Pier	2,050	
Sections 33-34	500	
		2,550
Wharf Refuse (By Derrick):—		
To spoil	5,325	5,325
Total Sundry Items of Filling by Derrick		10,625

Earth, Cinders, etc., from City Contractors (by Team)

	Cu. Yds. (Estimated)
Bickerdike Pier	83,500
Elevator "B"	100
Alexandra Pier, Shed No. 6	7,500
King Edward Pier, Shed No. 10	9,000
Shed No. 12	200
Jacques Cartier Pier, Shed No. 15	5,200
Sections 28 and 29	400
do 29 and 30	350
do 30 and 31	200
do 31 and 32	30,450
do 39	100
Elevator No. 3	10,400
Sutherland Pier	50
Sections 47 and 48	6,200
Total Filling by Teams	153,650

ELECTRICAL BRANCH

Power and Operation

The Harbour Commissioners purchased, under contract, electric power from the Montreal Light, Heat & Power Co., for their requirements, as follows:—

	H.P. Hours
Cold Storage Warehouse	3,824,199
Elevator No. 1 and Conveyors	4,207,305
Elevator No. 2 and Conveyors	3,098,582
Elevator No. 3 and Conveyors	3,551,031
Elevator "B" and Conveyors	2,938,138
Freight Hoists	37,202
Harbour Lighting	914,647
Harbour Yard	423,345
Transit Shed Lighting	618,982
Railway Electrification	3,614,851
Sub-Station No. 3	29,113
Miscellaneous	380,510

Lighting of High and Low Level Wharves

All the lighting of the high and low level wharves for the season of 1928 was carried on by the Harbour Commissioners' Electrical Department, the power being supplied through the several sub-stations.

The number of lamps in service varied from time to time during the year, reaching a maximum of 298 units for the

Series Circuits and of 28 for the Multiple Circuit.

Series Circuit	No. 1	58	lamps—	Windmill Point and Bickerdike Pier.
do	No. 2	39	do	McGill St. to Elevator No. 1.
do	No. 3	49	do	Elevator No. 1 to Section 19.
do	No. 4	42	do	Section 19 to Section 22.
do	No. 5	51	do	Section 22 to Section 40.
do	No. 6	59	do	Section 40 to Sutherland Pier.
		298	do	
Multiple Circuit.....		28	do	Victoria Pier, Victor and Berri Subways.
Total.....		326	lamps	

Additional Power Equipment

With the addition of No. 3 Elevator Annex to No. 3 Elevator, a further call for power was made with a result of approximately 1,600 H.P. additional load being put on the No. 3 Station feeder circuits. More transformer and switching equipment was installed in this section station, part of this equipment being in operation during the fall season of 1928 for handling grain.

Transmission Lines and Service Connections

Additional transmission and services were constructed to meet the demands for electric light and power throughout the season. A number of coal companies made application for services for handling coal at various locations between sections

27 and 39 and at Bickerdike Pier. This power was used for screening and loading.

Telephone System

A small private intercommunicating telephone system was installed for use at the Guard Pier. This system consisted of six instruments, which were placed at suitable locations in the outbuildings and connected to the office on the Pier. Conditions were improved and considerable time was saved for the men in charge of the work.

An underground duct was installed for the benefit of the Bell Telephone Co. at Papineau Ave. Services at this section have become so heavy that the Bell Telephone Co. made application for an underground cable to feed their customers between Sections 24 and 28. This 4″ iron conduit came through Papineau Subway attached to the west concrete wall and continued up the ramp to a point opposite Sheds 26 and 27, where it dips underground in clay ducts supported by a 4″ concrete floor. These clay ducts cross the roadway and tracks 2 ft. below the surface and on reaching the entrance to Shed 26 come up in a steel conduit to a distribution box located on the shed wall. At this point the cable divides and runs east and west, picking up the telephone instruments in the district.

Electrification of Railways

The entire electrified railway operated satisfactorily during the season without delays or inconvenience. Due to the construction of cross grain galleries between No. 3 Elevator and the Annex, some of the overhead had to be removed to permit the erection of these galleries. Directly these were put into place, the overhead trolleys and messengers were replaced and the service in this section resumed. Some sections which had been up for seven years showed signs of corrosion and were replaced by new strand known as copperweld. This copperweld is a steel strand copper clad and is being tried wherever galvanized strand is replaced and it is expected that it will show a considerably longer life than the best grades of galvanized strand hitherto obtainable.

Trolley Bracket Construction

The abnormal rise of the spring water, coupled with the ice shove, caused some considerable damage to the electrified railway overhead system, by breaking of the supporting poles. In order to obviate a recurrence of this nature, the poles on the river side of the line were taken down and brackets were erected on the poles on the opposite side of the track. 65 poles were thus equipped from Sections 62 to 70.

The following is a Comparative Statement of Freight Hoists, supplied with Power through the several sub-stations during the season 1928:

Hoist	Year	Total Teams Carried	No. of Days Operated	Started	Stopped
1	1926	11,407	204	Apr. 26	Dec. 18
	1927	14,916	205	18	15
	1928	12,113	208	16	15
2	1926	9,799	201	Apr. 26	Dec. 17
	1927	15,190	203	18	10
	1928	10,218	208	16	15
3	1926	12,499	197	Apr. 26	Dec. 11
	1927	16,313	206	18	15
	1928	23,375	208	16	15
4	1926	4,969	201	Apr. 26	Dec. 18
	1927	6,547	193	18	3
	1928	6,361	208	16	15
5	1926	6,498	197	Apr. 26	Dec. 11
	1927	7,471	202	18	10
	1928	8,132	208	16	15
6	1926	7,045	198	Apr. 26	Dec. 14
	1927	8,502	207	18	15
	1928	8,738	208	16	15

Hoist	Year	Total Teams Carried	No. of Days Operated	Started	Stopped
7	1926	8,943	199	Apr. 26	Dec. 15
	1927	5,201	200	18	10
	1928	8,198	208	16	15
8	1926	10,702	202	Apr. 26	Dec. 17
	1927	12,948	206	18	15
	1928	12,955	211	16	19
9	1926	9,492	196	Apr. 26	Dec. 11
	1927	10,878	206	18	15
	1928	14,735	208	16	15

PAVING

The Berri Street Ramp leading from Commissioners Street and Berri Street to the low level Victoria Pier was paved with granite blocks. In all 2,050 sq. yds. of pavement was laid.

RAILWAYS

The mileage of the Harbour Commissioners' Railways was increased during the season by 2,914 lin. ft. This is represented by:

The extension of railway tracks along the parallel to Shed No. 6, Alexandra Pier, amounting to 392 lin. ft.

The extension of railway tracks along and parallel to Shed No. 10, King Edward Pier, amounting to 478 lin. ft.

The extension of one track along and parallel to the extension of Shed No. 15, Jacques Cartier Pier, amounting to 248 lin. ft.

An extension of 600 ft. of tracks was laid along and parallel to the new Extension to the Canada Cement Wharf.

572 lin. ft. of track at Elevator No. 3 Annex.

Cross-overs from Track No. 1 to Track No. 5, Section 30, on account of rearranging tracks after false work of Bridge was removed, 624 lin. ft.

In addition to the above, 1,315 lin. ft. of temporary track was laid and lifted for filling and reclaiming purposes at the Canada Cement Wharf.

200 lin. ft. of track, including a No. 7 turnover, was relaid on behalf of the Dominion Distilleries.

MAINTENANCE

Wharves

The Maintenance Force, in addition to ordinary patching of wharves, examination of sewer outlets, examination of crib bottoms for scouring and attention where necessary, taking care of temporary pile cluster landings and floating platforms used during the season by the different industrial companies in the Harbour, as well as the Elevator No. 2 Jetty bridges and stairs, and the section signs, carried out the following important work:—

Driving of Piles

48 piles for mooring the Harbour Fleet along the lower end of the Guard Pier.

34 piles, as well as placing temporary floating wharf, for Shell Oil at Section 61.

27 piles for temporary landing at Section 100 for Frontenac Oil Co.

30 piles (6 clusters of 5 piles) at Victoria Pier for Canada Steamship Lines.

40 piles (framed), making temporary landing and laying pumping line for Independent Sand Co. at Section 70.

30 piles at Poupart Street Sewer Outlet.

10 piles between old and new cribs at Canada Cement Wharf.

24 piles in connection with two 16″ drains for Canadian Steel Foundries.

Wharf faces were repaired as follows:—

Sections 9 and 10, 900 ft. of fender waling.

Sections 6-8N, 300 lin. ft. of 12 x 12 coping.

Entrance to Lachine Canal, south side, 60′ x 8′ x 16′.

Entrance to Lachine Canal, north side, 35′ x 6′ x 16′.

Jacques Cartier Pier, at Shed 12, 160′ x 10′ wide x 21″ high.

Jacques Cartier Pier, at Shed 14, 90′ long by 10′ wide by 16′ high.

Sections 40 and 41, 150′ x 7′ x 16′.

Sections 41 and 42, 100 ft. of coping.

Canada Cement Wharf, put in 12″ x 12″ waling.

Sutherland Pier, east side, outer end, 800′ x 7′ x 12′.

Wharf top planking

Sections 6N-8N, 2,000 ft. B.M. of 3″ planking.

Jacques Cartier Pier, at Shed 12, 2,000 ft. B.M. 3″ planking.

Jacques Cartier Pier, at Shed 14, 500 ft. B.M. 3″ planking.

Bollards

Made foundation for bollard at entrance to Old Lock, Lachine Canal.

Reset 3 moorings at Shed 12.

Reset 3 moorings at Shed 14.

Replaced one mooring and reset 2 others on Jacques Cartier Pier.

Section 40 and 41, reset 2 moorings.

Sutherland Pier, east side, outer end, reset 8 moorings.

Fenders

Made and hung in place 6 hard wood fenders on face of Victoria Pier, at Shed 19.

Installed 2 wooden fenders, 2 ft. by 35 ft. long, to fit corners of the Jetty at Elevator No. 3.

Miscellaneous Work

Building several bulkhead walls to retain filling at the junction of old and new sections of Jacques Cartier and King Edward Piers.

Erected a landing stage 8 ft. wide by 25 ft. long at Longue Pointe, for Health Branch of the Immigration Department.

Renewed the stairway from low to high level at Sections 11 and 12.

Placed beacons for channel between Racine Pier and Vickers Dry Dock.

Placing sign boards marking anchorage berths, Sections 78 to 86.

Resurfaced with shale rock the Government Wharf at Longueuil.

Demolished 50′ x 25′ x 22′ of old crib for the extension of Shed No. 15, Jacques Cartier Pier.

Closed gaps between old and new work at Jacques Cartier and Bickerdike Piers, to retain filling.

Salvaged 12-24″ "I" beams from over Lachine Canal Raceway.

Cleaned intake sump and pump well at Cold Storage Power Plant.

Transit Sheds

The following are the most important items of work done by the Sheds Maintenance force during the season:—

The interior of upper floors of Sheds Nos. 8 and 10 received two coats of paint.

The exterior of Sheds Nos. 18 and 19, river front, received two coats of paint.

The exterior of the two Marine legs or towers at Elevator "B" received 2 coats of paint.

The exterior of galleries over Sheds Nos. 18 and 19 received 2 coats of paint.

The offices in Sheds 45 and 46, which have been unoccupied for the past few years, were cleaned and done over anew.

Some 350 sliding doors were repaired during the season.

The usual maintenance of roofs, spouts and gutters was carried out by the Maintenance forces during the season.

Over 2,076 lin. ft. of flashing was renewed on the gallery system, together with some 350 lin. ft. of cornice.

Plumbing

The laying of sewer and water main extension, the equipment of lavatory rooms, the repair and renewal of the plumbing system, along the water front, including all buildings, transit sheds, grain elevators, owned by the Commissioners, were carried out by the usual Plumbing force.

General

The general cleaning, watering and upkeep of the High and Low Level roadways was kept up during the season.

All water connections and latrines were connected up by May 15th and kept in good order throughout the season.

All latrines and drains were flushed with the fire hose as required.

All sheds were kept clean during the season, scows being placed at the disposal of this department for placing sweepings from sheds, as well as from the wharves, thereon.

5,260,000 cu. ft. (1,020 orders) of fresh water was given to vessels, from Sections 4 to 46, during the season.

All water meters on the Harbour were read each month and checked with the City Inspector.

All electric hoists for the sheds were flushed out every week with fire hose.

Life Saving Equipment

The usual precautions were taken to facilitate the saving of life and the prevention of accidents by the maintenance of railings and the distribution of ropes, gaffs and life preservers at frequent intervals along the water front, which proved their value on a number of occasions during the season.

Fire Prevention, etc.

All hydrants in the Harbour were inspected daily and kept in readiness for service, as well as all fire protection equipment.

All fire extinguishers on the Harbour were recharged on May 1st and kept in good order. 32 of these extinguishers were used during the season, but there is no damage to Harbour property worth reporting.

The Quick-acting Gates in the Flood Wall were kept in good working order at all times.

The usual force of watchmen, etc., was employed to protect the property of the Commissioners, to guard the public from accident and to regulate the Harbour dumping grounds.

Cold Storage Plant Equipment

The refrigerating equipment in both the Warehouse and Power House operated throughout the year in a satisfactory manner. 3,064–100 lb. blocks of ice were made and delivered to the various Harbour works.

No further space was insulated or equipment added, only the usual maintenance work being done. This included the filling and painting of insulation on the main brine delivery and return pipes.

Harbour Yard Shops

The work done at these shops shows a considerable increase over the previous year, due chiefly to the fact that all machine shop work required in connection with the maintenance and repairs of the Commissioners' Floating Equipment was transferred from the Guard Pier to the Harbour Yard Shops. This arrangement made possible an appreciable reduction in the forces employed at the Guard Pier.

The total number of orders executed in these shops and their allocation is as follows:—

For Elevator No. 1	231
" Elevator No. 2	151
" Elevator No. 3	128
" Elevator "B"	120
" Conveyor System	41
" Electrical Department	470
" Traffic Department	198
" Railway Maintenance and Locomotive Cranes	70
" Floating Plant and Equipment	414
" General	437
Total	2,260

In addition to the above routine work, all parts for Grain Handling Equipment required in the extension to Gallery 15 were manufactured and made ready for erection.

The Floating Machine Shop was dismantled and two Lathes and one Shaper were taken to the Harbour Yard Shops, installed and placed in operation.

The good standard of service to the various works and plant by these shops was well maintained throughout the year.

Floating Plant

The following are the principal items of work carried out in connection with the floating plant during the year:—

Dredge No. 6: Repair to spud drum and boom. Hauled up on shipways for repairs to anchor keepers.

Dredge "John Kennedy": Repair to boiler.

Derrick No. 1: New gear on hoisting drum.

Derrick No. 8: Main keelsons reinforced.

Floating Crane: New friction for swinging engine and two new 1½" dia. by 100 ft. wire rope slings made. Boiler and steam pipes covered with asbestos covering.

Tug "St. Peter": Covering board and rail supports replaced.

Tug "Robert Mackay": Hauled up on shipways in May for repairs to forward frames and plating.

Tug "David Seath": Hauled up on shipways in September for repairs to stern tube and tail shaft.

General: Dredge buckets and scows repairs as required.

The dredges, derricks and other floating equipment completed a heavy season's work with a minimum of time lost for repairs and maintenance.

GRAIN ELEVATORS

The in-and-out movement of grain detailed elsewhere in this report exceeded in volume and weight that of any previous season. The usual through winter overhauling was completed in time to receive grain from the first canal vessel on April 23rd and from this time until the close of the season the

grain handling equipment operated most satisfactorily. The principal items attended to during the year were:—

Elevator "B"

Eight cables replaced on Car Dumper, which had also the following renewals: One new worm shaft and bronze nut for car clamps; one bronze gear and worm shaft for lifting cars; 1,500 ft. of new conveyor belt installed; replaced internal roller bearings by external roller bearings on three shipping legs, two marine lofters and one marine leg with satisfactory results as to lubrication.

Elevator No. 1

Made and installed three new travelling belt loaders to facilitate faster handling of grain; lofter leg belts 2, 3 and 5 renewed; removed magnet shovel control for Marine leg No. 2 and installed air controlled shovel drums.

Elevator No. 2

Removed motors and countershafts on bin floor and installed motors and chain drives on conveyor floor, increasing the belt speeds; 76 Mailer spouts altered for increased capacity, which in turn permitted quicker release of drafts from scales; new head pulley installed on marine leg No. 2; renewed leg belts as follows: Car leg belt No. 5, shipping leg belts 13 and 14.

Elevator No. 3

Replaced internal roller bearings by external roller bearings on lofters and marine legs to the extent of 28 in all. Renewed the following belts: Two marine legs and Nos. 3 and 4 lofters; new hoisting cable on marine leg No. 3; two new car puller cables; fitted new bearings to marine legs 3 and 4 to make it possible for legs to reach over the tunnel of ocean ships; reinforced car door openers.

Conveyor System (Central Section)

Rebuilt 2 grain hoppers east end of No. 1 Elevator. The following belts were renewed: Conveyor belt 9A, 1,060 ft., one leg belt 175 ft.; Conveyor belt 4A, 1,080 ft.; 11B hopper in tower "D" remodelled; installed three new tripper drums in galleries 9A, 13 and 16.

Hoists

Overhauled and kept in repair for continuous operation 14 freight hoists and 10 passenger hoists. Fitted to the freight hoists serving Sheds Nos. 5, 6, 12 and 15 magnetic type brakes with no voltage protection.

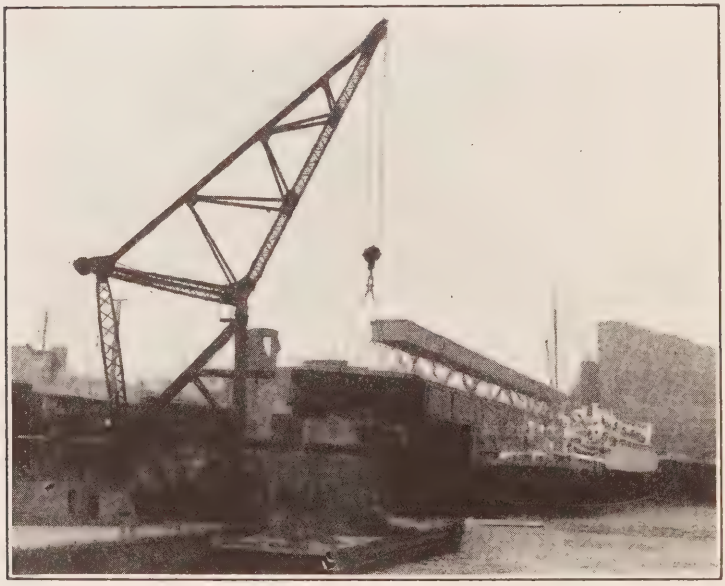
Locomotive Cranes

These cranes were not as busily engaged as last season, due chiefly to the falling off in coal handling. The distribution of time work is as follows:—

	1928	1927	1926
On coal	34.8%	57%	31%
On Harbour works	33.4	30	49
Miscellaneous work	31.8	13	20

Floating Crane

The record of work done by this 75-ton floating crane is as follows:—



HARBOUR COMMISSIONERS' 75-TON FLOATING CRANE

Number of working days		207
Number of days working		147
Total number of lifts:		
Commercial	974	
Commissioners' service	77	
		1,051
Average weight of lifts:		
Commercial		9 tons
Commissioners' service		21 "
Greatest lift:		
Commercial		75 tons
Commissioners' service		75 "
Greatest tonnage from single ship:		
S.S. "Valfiorita"		475 tons
Total weight lifted:		
Commercial	8,802 tons	
Commissioners' service	1,604 "	
		10,406 tons
Total weight lifted in season of 1927		8,505 tons
Total number of lifts made in 1927		999 "

EMPLOYMENT IN HARBOUR OF MONTREAL

The following table shows the maximum and average number of workmen employed by the Harbour Commissioners during the season of 1928, exclusive of men employed by the different contractors on harbour construction work:—

	Maximum	Average
Maintenance of Harbour	334	243
Maintenance of Steel Sheds	14	12
Harbour Yard:		
All trades	105	93
Round House:		
Machinists, etc.	31	29
Guard Pier:		
Maintenance and Repair men	40	31
Shipyard	54	28

		Maximum	Average
Dredging Fleet:			
Dredges, tugs, etc		173	170
Elevator No. 1:	Operation	37	35
do	Car Shovellers	11	9
do	Boat Shovellers	45	34
Elevator No. 2:	Operation	43	40
do	Car Shovellers	13	13
do	Baggers	61	24
do	Boat Shovellers	69	55
Elevator No. 3:	Operation	48	43
do	Car Dumper Operation	15	11
do	Boat Shovellers	89	61
Elevator "B":	Operation	64	44
do	Car Shovellers	29	19
do	Boat Shovellers	35	31
Conveyor Galleries:			
Elevators Nos 1 and 2		60	59
Elevator No. 3		23	20
Elevator "B"		41	15
Electrical Department		119	112
Traffic Department		134	117
Cold Storage Warehouse: Operation and Maintenance		54	46
Cold Storage Powerhouse: Operation and Maintenance		14	11
Cold Storage Powerhouse: Electrical		13	13
Construction: Wharves, tracks, etc		167	97
Elevator No. 3, Annex Construction		108	74
Police		66	64

WATER LEVELS

The depth of water for navigation in the Montreal Harbour Ship Channel and on the Sill of Lower Lock, Lachine Canal, is given in the following table:—

	Depth on Old Lock Sill, Lachine Canal		Depth in Harbour Channel	
	Average 1914–28	Average 1928	Average 1927	Average 1928
May	19′6″	23′1″	32′5″	38′6″
June	17′6″	19′8″	32′5″	35′1″
July	15′11″	17′3″	31′1″	32′8″
August	14′11″	16′3″	30′11″	31′8″
September	14′4″	15′7″	29′5″	31′0″
October	14′6″	17′1″	29′5″	32′6″
November	14′11″	17′6″	32′3″	32′11″

LIST OF HARBOUR COMMISSIONERS' FLOATING PLANT

1928

Description of Vessel	Hull. Length		Breadth		Depth		When built	Engines. Kind of Engine	No. of cylinders	Dia. of cylinders	Length of stroke	Pressure of steam	Capacity of Bucket	Depth to which Dredge can work	Remarks
	ft. over	in. all	ft. beam	in.	ft. over	in. all				inches	inches	lbs.	c.y.	ft.	
Dredges					9 Fd.	5									
J. Kennedy (Boom Spoon)	104	4	37	0	7 Aft.	6	1892	Horizontal non-condensing	2	16	18	125	7	40	Steel Hull, Rblt. 1923-24
No. 5 " "	104	0	36	2	11	0	1910		2	16	18	125	7	40	Steel Hull.
No. 6 " "	104	2	39	2	10	9	1912		2	16	18	140	7	50	Steel Hull.
Derricks															
No. 1 Clam shell	87	2	31	2	9	3	1899		2	12	14	140			Wooden hull, Rblt. 1925
No. 3 " "	77	0	27	6	8	0	1900		2	12	14	125			Wooden hull.
No. 4 " "	80	5	27	10	7	6	1892		2	12	14	125			Wooden hull. Rebuilt 1923
No. 5 " "	80	1	27	10	7	6	1892	Horizontal high pressure	2	12	14	125			Wooden hull.
No. 6 " "	80	1	27	10	7	5	1892		2	12	14	125			Wooden hull, Rblt. 1913
No. 8 " "	87	5	31	0	9	3	1915		2	12	14	140			Wooden hull " 1915
Tugs					Hold										
St. Peter (Fire Tug)	74	8	16	1	8	6	1875	Vertical non-condensing	1	20	22	125			Wooden hull, Rblt. 1921
Aberdeen	79	3	18	3	9	0	1895	Vertical condensing	1	16	24	140			Steel hull.
									1	32					
Robert Mackay	80	9	17	6	10	0	1899		1	16	24	140			Steel hull
									1	32					
Sir Hugh Allan	130	0	26	6	15	0	1911	Vertical triple expansion condensing	2	16	24	180			Steel hull, twin screws.
									2	25					
									2	40					
John Young	91	8	22	0	9	0	1911	Vertical condensing	2	12	18	140			Steel hull, twin screws.
									2	24					
Passe-Partout	49	1	11	3	5	7	1912	Vertical high pressure	1	9	10	110			Wooden hull, Rblt. 1925
David Seath	75	5	18	5	10	2	1915	Vertical condensing	1	13	22	140			Wooden hull,
									1	26					

					over	all							
Drilling & Blasting Boat	80	0	27	0	5	6	1895		.....	.....	.....	100		Three 5 in. steam drills Rebuilt 1923
Steam Yacht "Bethalma"	110	4	16	5	10	2	Purch. 1923	Triple Expansion condensing	1 1 1	9 14½ 25	18	200		Steel hull. Rebuilt 1921
Motor Boat "Messenger"	30	2	6	4	3	7	1926	Red Wing 40 HP	4	4½	5½			
Testing boat	81 81	4 4	14 14	0 0	5 5	2 2	1900							Two wooden scows braced 16 ft. apart; overhauled 1924
Grain barge "Ethel"	158	0	27	11	17	2	1910		.....	.....	.....	.....	.....	Capacity about 27,000 bushels
Floating concrete machine	101	0	35	0	8	6	....	.....	.....	.....	.....	.....	.....	Rebuilt 1925
Floating pile driver	60	4	24	10	5	6	1896							
Floating elevator, No. 18	90	6	28	0	8	4	1904	Operating hor. Propelling "	1 1	15 15	34 18	100 110		Capacity about 7.000 bushels per hour
Floating Crane	200	5	43	10	10	0	1909	**Capacity.** 75 tons						Max. load at 51′ radius 75 T. " height at 51′ (hook) 100′
Scows.														
2 Flat scows Nos. 2 & 4	75	0	20	2	6	0	1876	67½ yds.	.....	.....	.....	.....	.....	No. 2, Rebuilt 1925
2 " " Nos. 21 & 22	85	0	25	0	7	5	1891	150 "	.....	.....	.....	.....	.....	No. 22, Rebuilt 1926
1 " " No. 23	85	0	25	0	6	9	1891	150 "	.....	.....	.....	.....	.....	Rebuilt 1925
4 " " Nos. 26-29	85	0	25	0	6	9	1892	150 "	.....	.....	.....	.....	.....	.....
4 " " Nos. 31& 33-35	85	0	25	0	6	9	1893	150 "	.....	.....	.....	.....	.....	.....
2 " " Nos. 39 & 40	85	0	25	0	6	9	1903	150 "	.....	.....	.....	.....	.....	.....
2 " " Nos. 41 & 42	87	0	25	0	7	6	1904	150 "	.....	.....	.....	.....	.....	No. 42, Rebuilt 1925
16 " " Nos. 43-47 & 50-60	100	0	30	0	9	0	1911–23	300 "	.....	.....	.....	.....	.....	No. 50 " 1925
2 " " Nos. 61-62	100	0	30	0	9	0	1925	300 "	.....	.....	.....	.....	.....	.....
4 " " No. 63-66	100	0	30	0	9	0	1926	300 "	.....	.....	.....	.....	.....	.....
2 " "	40	0	24	9	4	6			.....	.....	.....	.....	.....	Purchased 1926
Diver's scow No. A-1	46	3	18	0	4	3	1924							
Water scow No. A-2	45	4	15	0	3	4	1926		.....	.....	.....	.....	.....	.....
Dust scow No. A-3	45	4	15	0	3	4	1926		.....	.....	.....	.....	.....	.....
2 Dump scows, Nos. 36 & 37	106	0	26	10	9	6	1900	200 "	.....	.....	.....	.....	.....	No. 36 Reblt. 1924; No. 37 Reblt. 1925
1 " " No. 38	106	0	26	10	9	6	....	200 "	.....	.....	.....	.....	.....	.....
1 Flat scow No. 67	100	0	30	0	9	0	1927	300 "	.....	.....	.....	.....	.....	.....
1 " " No. 68	100	0	30	0	9	0	1928	300 "	.....	.....	.....	.....	.....	.....

(*Note.*—Flat scow No. 53 dismantled in 1928.)

AVERAGE DEPTH FOR EACH MONTH IN THE 30-FOOT CHANNEL AT SOREL
(30 Feet at Extreme Low Water of 1897)

Year	May	June	July	August	September	October	November	High	Low
1914.....	35′ 2″	33′ 0″	32′ 4″	31′ 4″	31′ 3″	30′ 11″	31′ 0″	36′ 10″	30′ 3″
1915.....	34′ 7″	32′ 6″	31′ 6″	31′ 4″	31′ 1″	30′ 11″	30′ 8″	37′ 4″	30′ 1″
1916.....	38′ 9″	37′ 2″	34′ 0″	32′ 5″	31′ 7″	31′ 9″	31′ 10″	40′ 0″	30″ 9′
1917.....	36′ 8″	36′ 6″	34′ 10″	33′ 6″	32′ 3″	32′ 6″	33′ 0″	38′ 2″	31′ 3″
1918.....	35′ 1″	33′ 0″	32′ 10″	30′ 11″	31′ 4″	32′ 6″	33′ 10″	36′ 11″	30′ 3″
1919.....	38′ 7″	35′ 7″	32′ 5″	31′ 4″	31′ 1″	31′ 7″	32′ 9″	39′ 11″	30′ 3″
1920.....	33′ 7″	30′ 10″	30′ 4″	29′ 9″	29′ 4″	29′ 4″	29′ 4″	34′ 8″	28′ 3″
1921.....	34′ 7″	31′ 9″	30′ 10″	31′ 7″	29′ 10″	30′ 2″	30′ 5″	37′ 6″	30′ 1″
1922.....	36′ 0″	33′ 9″	34′ 2″	32′ 2″	31′ 2″	31′ 3″	30′ 11″	37′ 8″	30′ 1″
1923.....	38′ 4″	34′ 6″	32′ 4″	31′ 5″	31′ 4″	30′ 11″	30′ 9″	39′ 1″	30′ 0″
1924.....	38′ 7″	34′ 5″	32′ 5″	31′ 10″	31′ 11″	32′ 3″	31′ 3″	40′ 0″	30′ 1″
1925.....	35′ 2″	33′ 9″	32′ 4″	31′ 8″	30′ 11″	31′ 2″	31′ 9″	36′ 6″	30′ 3″
1926.....	37′ 4″	34′ 6″	32′ 10″	31′ 7″	31′ 1″	31′ 3″	33′ 2″	39′ 6″	30′ 6″
1927.....	34′ 3″	33′ 11″	33′ 3″	32′ 5″	31′ 3″	31′ 4″	34′ 10″	37′ 8″	30′ 5″
1928.....	40′ 3″	36′ 6″	34′ 0″	33′ 0″	32′ 8″	34′ 0″	34′ 2″	41′ 7″	31′ 7″

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